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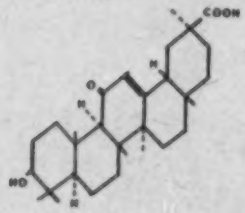

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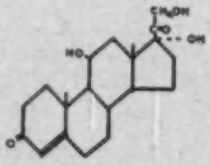

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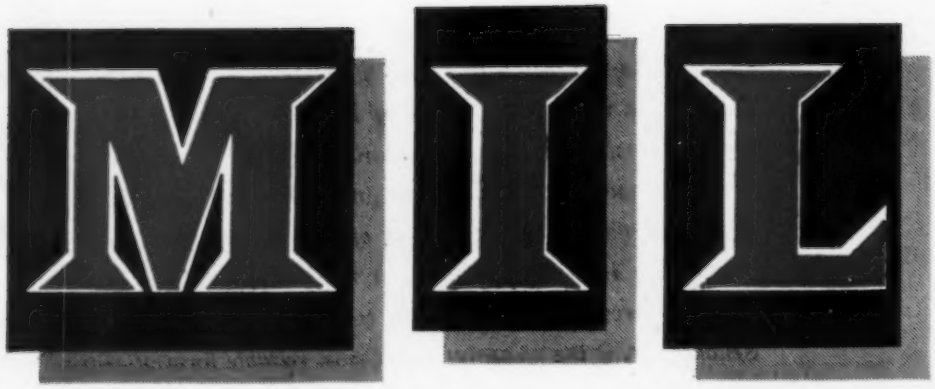

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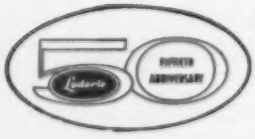

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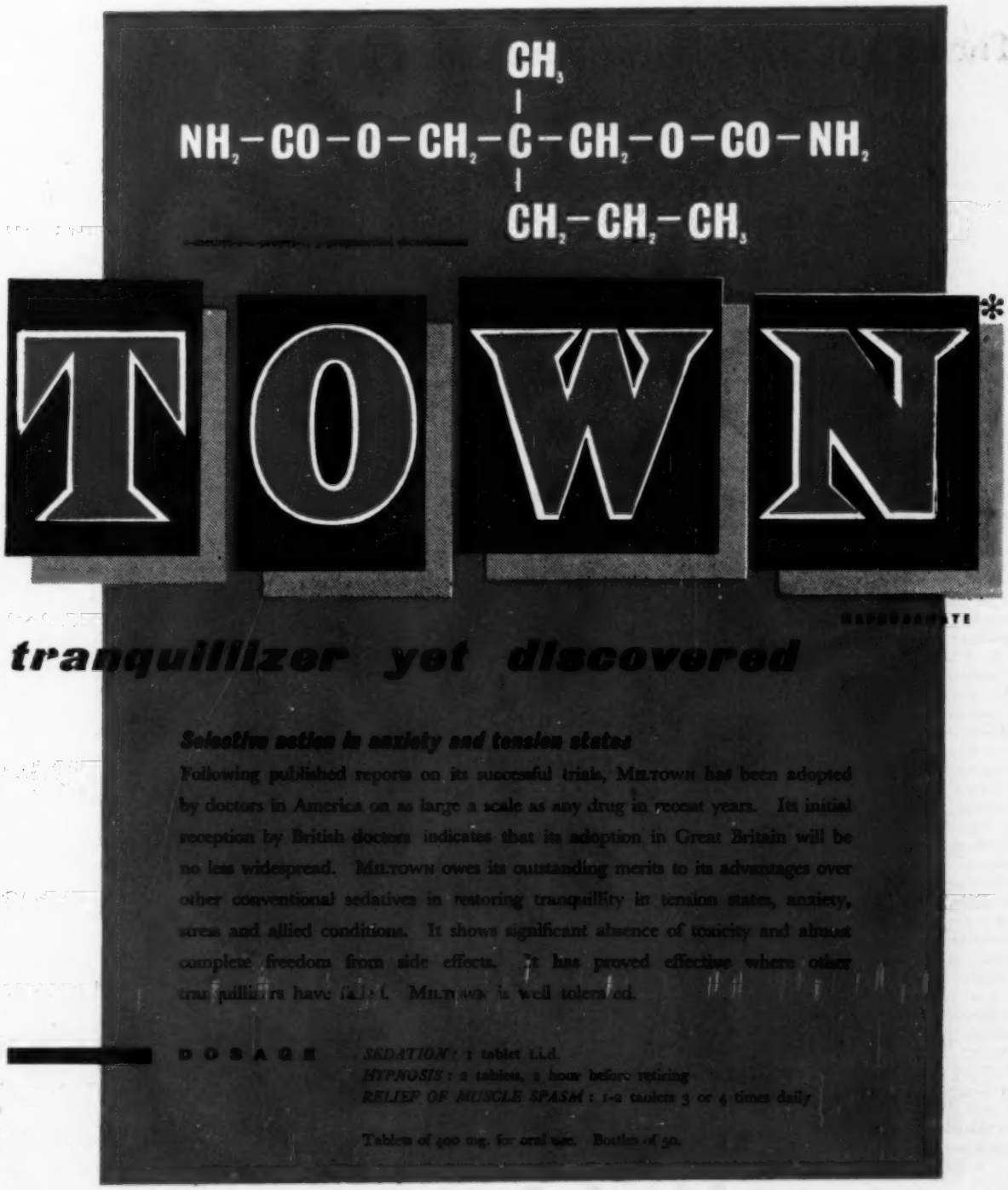
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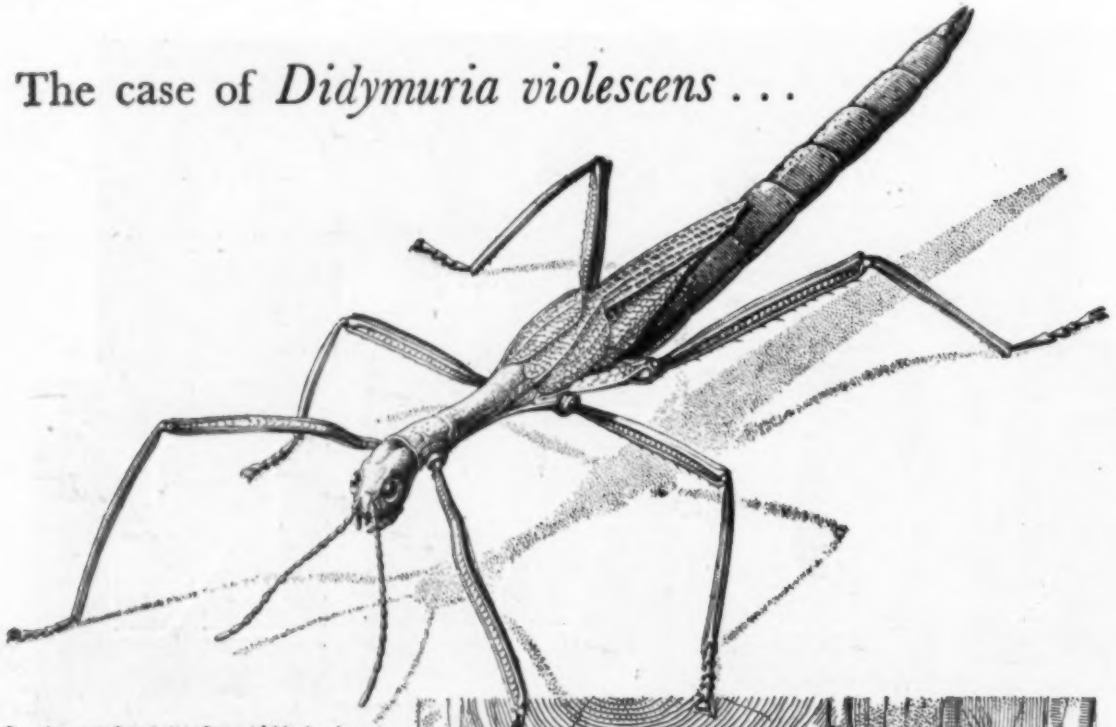

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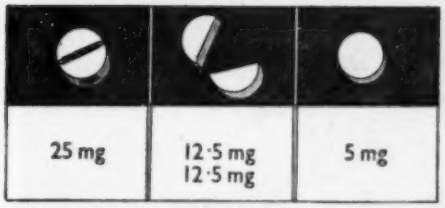

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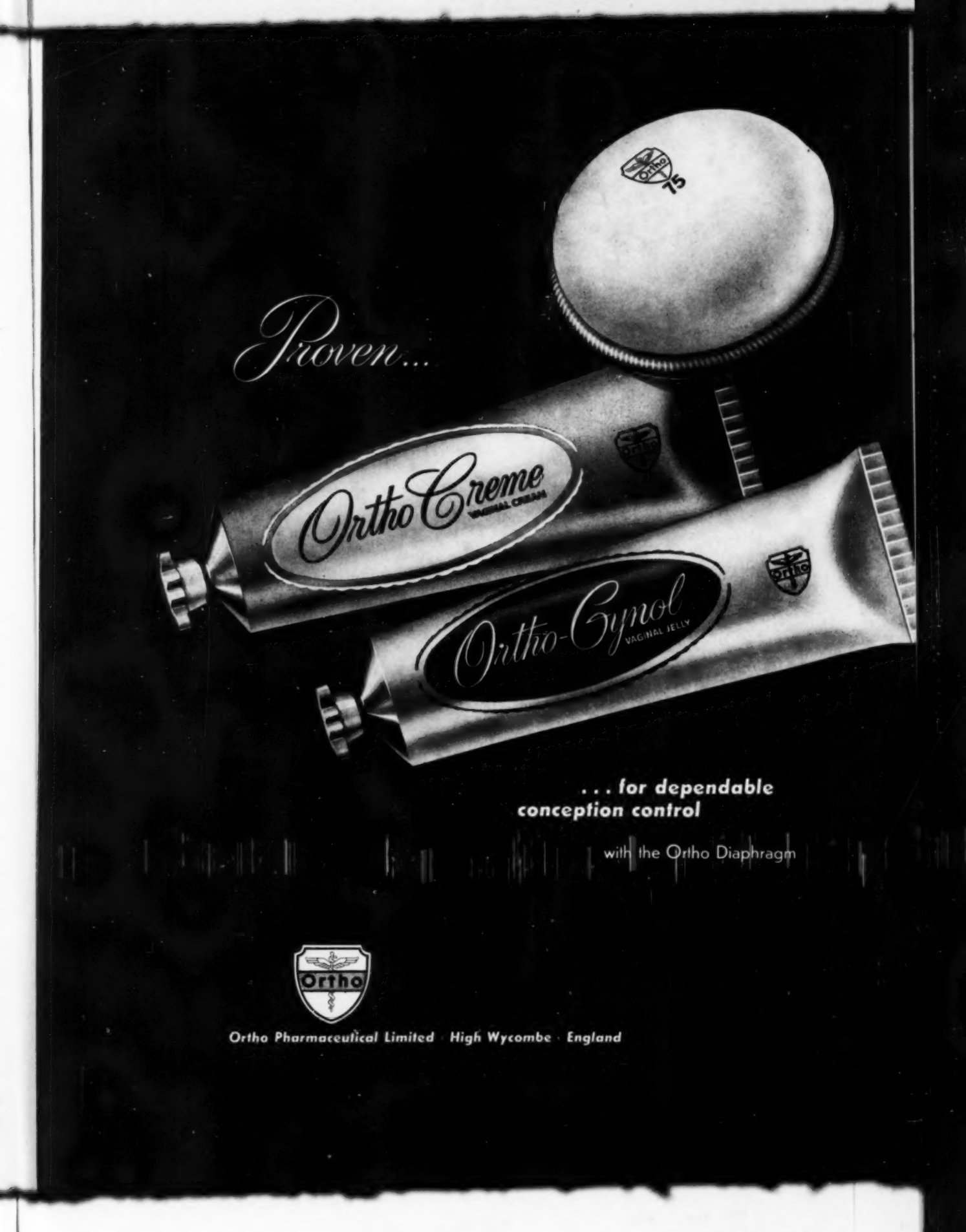

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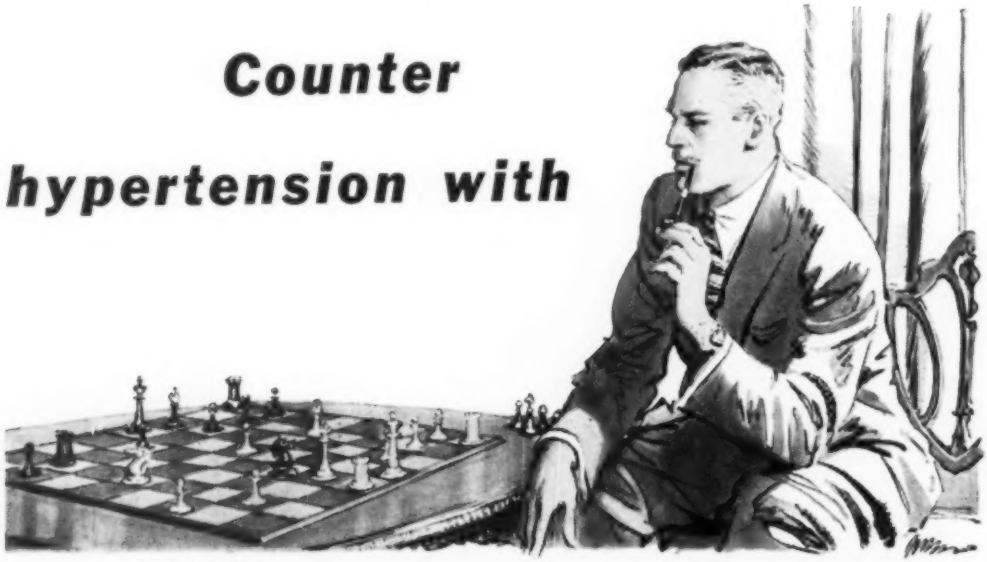

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY AUGUST 4 1956

THE NATURE OF GENIUS*

BY

ERNEST JONES, M.D., D.Sc., F.R.C.P.

Consulting Physician, London Clinic of Psycho-analysis

One hundred years ago there came into life a being whose long years of work and insight were to make such contributions to knowledge as profoundly to influence the civilization of every country. And we may safely say that the full impact of that influence has yet to be experienced. Whoever stands in my place in another hundred years from now will in his commemorative speech—and I am confident there will be one—be able to report further progress in the assimilation and application of Freud's discoveries to an extent which it is impossible for us now to predict.

I chose the title of my lecture for its brevity, but it would have been more modest and more accurate had I entitled it "Some of the Factors Conditioning the Workings of Certain Forms of Productive Thinking." You will allow me to rectify it in this sense.

There is a quite stupendous literature on the subject of what Ostwald called "geniology," which would necessitate a large volume merely to summarize. This is certainly not the place to attempt any such compilation, but it is worth while commenting on the relative fruitlessness of so many of the attempts to solve the problem of genius. I should attribute that largely to the emotional ambivalent attitude so commonly shown in the approach to the topic. It has been well said that "there is a sort of doom overshadowing the very conception of genius: everyone who approaches it is drawn into a murky orbit of adoration and contempt, idolatry and scorn, profundity and shallowness." On the one hand, there are the writers who display a dithyrambic narcissistic identification with geniuses which allows the authors to praise their own glory under the guise of adoration. The Marquis de L'Hôpital asked: "Does he eat, drink and sleep like other men? . . . I represent him to myself as a celestial genius, entirely disengaged from matter." Such writers indignantly deny that genius has any relation to mere talent. De Quincey, for instance, maintained that the two are "not merely different, but are in polar opposition to each other." One author even regarded genius as "a psycho-biological mutation," from which it is only a step to contemplating the future selective breeding of geniuses.

On the other hand, more envious writers have laboured to find various ways of directly or indirectly disparaging men of genius and their achievements. The most popular one, from the time of Lombroso and Nordau onwards, is to insist that geniuses are psychopaths and mostly tainted with insanity, their achievements being lucky and more or less accidental by-products. The literature on this aspect of the problem is very extensive, but I have not found it illuminating. One can also detract from any credit due to the genius by asserting it was the result purely of heredity, so that we owe him no praise. One of the most original writers on the topic, Lange-Eichbaum, goes so far as to maintain that what constitutes a genius is the height of fame to which his worshippers raise him, this being the reason why the decision of who precisely is a genius varies from one period to another. But perhaps he did not sufficiently distinguish here the matter of subjective recognition from that of the actual objective achievement.

In the first place we may ask whether there really is such a thing as genius—that is to say, any attribute that differs essentially in its very nature from those present in all human beings. It is a question that has been often debated, but I propose to answer it from the start with a decided negative, and in doing so I find myself in agreement with such a high authority as Kant. All Freud has taught us concerning the regular laws of mental development goes to confirm the view that the manifold differences between various individuals, and indeed between the various races of mankind, are quantitative rather than qualitative, and this conclusion is only slightly modified by the reflection that a quantitative difference may on occasion be so striking as to give the impression of something qualitative and absolute. The question seems to me to resemble that concerning the presence in mankind of something qualitatively different from anything present in other animals—namely, the divine gift of a soul—and I need hardly say that this also finds no support in either biological or psychological researches. Indeed, the original meaning of the word "genius" was a designation for a semi-divine spirit who on appropriate occasions visited certain fortunate mortals and inspired their creations, after which it could presumably wander forth in search of other habitats. We still retain this sense of a discarnate spirit when we speak of a *genius loci* or of the "genius of a language" which institutes changes independently of any individual volition. It was only in 1700 that the term began to designate the actual person who was thought to be inspired by something mysterious within.

We apply the term "genius" more often to artists, particularly poets, whose intuition at times seems to border on the miraculous, than to men famous for more purely intellectual achievements. It is very possible that the conditions of creative genius are not identical in these two groups. At all events I am so much less at home

*Address delivered at the Royal Society of Medicine on the occasion of the centenary of the birth of Sigmund Freud.

with the former that I propose here to refrain from any consideration of its nature, and will refer you to Ernst Kris's masterly study of artistic creativeness. Even the intellectual group itself is by no means homogeneous. We speak of the genius of Napoleon, for instance, because of the degree in which both his military and his administrative capacities transcended those of the average being. I will therefore narrow my field still further to that of scientific production of the highest order.

Attributes of Genius

The number of those whose claims to belong to this Olympus are universally recognized is very small. After listing such names as Newton, Darwin, and Einstein we begin to enter a more debatable territory. "The genius of Freud" is a phrase that has been used so widely that I think we must subscribe to a truth contained in it. Characteristically enough, Freud himself vehemently dissented from its being applied to him. Even as far back as 1886, when he was 29, he wrote to his betrothed: "There was a time when I grieved that Nature had not, in one of her gracious moods, impressed on me that stamp of genius as she sometimes does. Since then I have long known that I am no genius, and I no longer understand how I could have wished to be one. I am not even very talented; my whole capacity for work probably lies in my character attributes." On one occasion in later life when it was applied to him he burst out with the protest: "Geniuses are unbearable people. You have only to ask my family to know how easy a person I am to live with. So I cannot be a genius." This disclaimer, however, was based on a very partial definition of genius, so we need not take it too seriously. But to ask in what sense the term can properly be used of Freud leads us into the heart of our subject and raises a number of difficult problems.

The numerous attempts to define genius have not proved very helpful. On one occasion some thirty definitions were listed, but for present purposes we may be content with that offered by the *Encyclopaedia Britannica* as "the highest conceivable form of original ability, something altogether extraordinary and beyond even supreme educational prowess." One notes here what is certainly a characteristic attitude of the beholder, that of astonishment or even amazement, one that is doubtless the source of the intense admiration the productions of genius so often evoke. It gives rise to the notion of mystery about the achievements of genius, and hence to that of its supernatural nature. Of all their characteristics Révész selects this one of *surprise* as being the most central, to which all others are accessory, and he perspicaciously remarks that it is typical for this feeling to be repeated, however often one contemplates the achievement.

Intuition; Spontaneity; Periodicity

This seems to accord with the frequency with which geniuses often receive their inspiration in a sudden flash that startles the recipient himself. It is a feature that has always been recognized. Both Plato and Aristotle commented on it, and they associated it with the divine source of the inspiration. The description of Apollo in the third book of *Hyperion* seemed to Keats to have come by chance or magic—to be, as it were, something given to him. He said also that he had often not been aware of the beauty of some thought or expression until after he had composed and written it down. It had then struck him with astonishment and seemed rather the production of another person than his own. Alfred Russel Wallace wrote: "Finally both Darwin and myself, at the critical period, had our attention directed to the system of *positive checks* as expounded by Malthus in his *Principles of Population*. The effect was analogous to that of friction upon the specially prepared match, producing that flash of insight which led us immediately to the simple but universal law of the 'survival of the fittest.'" This is, however, a feature by no means always present. The flash of insight which Wallace described did presumably happen to him, but Darwin himself seems to have reflected on the suggestion more calmly. No one can have accepted revelation more tardily and gradually, even cautiously and very timidly, than Darwin, whose dawning vision came only as the result of many years of hard work.

In a disquisition on this element Lessing wrote: "How many conclusions would seem theoretically irrefragable had not genius succeeded in demonstrating the contrary," a statement that applies peculiarly aptly to much of Freud's work. In describing a recent discovery in physics Dr. Gabor made the interesting remark: "This statement has that touch of offending common sense which is the hallmark of every truly important scientific discovery." Freud's discoveries satisfied this criterion in full measure. Many philosophers and psychologists have shown conclusively that in theory there can be no such thing as unconscious mental processes, and our common sense fully agrees; yet, as Charcot said in a phrase Freud was fond of quoting, "*ça n'empêche pas d'exister.*" I think we shall agree that there was enough of this element of surprise with which Freud's work has been greeted to warrant our attaching at least this one to the attributes needed to qualify for the title of genius.

Allied to this feature of intuitive inspiration is the characteristic spontaneity with which the productions of genius appear. They can never be brought about by a deliberate effort of will, and nothing can ever force them. Lowell has wittily said that "talent is that which is in man's power; genius is that in whose power man is," and Voltaire with equal wit expressed it thus: "The works of genius are to compilations what love is to marriage; Hymen comes when one calls and Cupid when it pleases him." Most writers on the subject are agreed that the achievements of a genius are out of his power. Goethe, who could speak from personal experience, laid it down that "all productivity of the highest kind, every significant piece of insight, every discovery, every great thought that proves fruitful and leads to further consequences, stand in the power of no one, and are beyond all earthly might. A human being has to regard them as unhoped-for gifts from above which he has to receive and revere with joyful thanks." Another poet put it in this way: "Genius does what it must and Talent does what it can." It is clear that this attitude of passive surrender towards the flowing in of the valuable ideas must be significant for the psychology of the productive process.

A third feature which has often been noted is that of periodicity. Moebius, for example, made a study of the cycles of productivity displayed by Goethe, and the same feature has been noted with Beethoven and many other geniuses. Freud himself often maintained that his productivity was at its maximum in cycles of seven years, though he had to strain the evidence somewhat to make it fit this precise span. Still, his most original productions are only a year or two out from his estimate: "Cocaine"; *Aphasia*; *Interpretation of Dreams*; *Theory of Sexuality*; *Totem and Taboo*; *Beyond the Pleasure Principle*; *Inhibitions, Symptoms and Anxiety*; and the *New Introductory Lectures* make a series that approximate to this observation. As might be expected, the notion of periodicity has been interpreted in clinical terms of cyclothymia, but with only occasional evidence in support of this. Freud, for instance, despite plenty of external grounds for despondency, suffered from only one mild and transitory attack of depression in his whole life, and his variation in moods never transcended the normal ambit. It seems to me that most of these cycles in productivity are sufficiently explained by the natural rhythm of life, particularly the variations in libidinal tension that belong to this.

The features just described may be encountered indiscriminately with all forms of genius, and I shall now consider three or four further ones which are much more characteristic of scientific production than of artistic inspiration. The most obvious of these is the indispensable one of absolute honesty. It was Goethe who laid down the law that "the first and last task required of genius is love of truth."

Originality

Then we come to the somewhat vexed matter of originality. It is certainly a more frequent occurrence for a man of science to make a new discovery than for a poet to invent an entirely fresh theme or even phrase, but, on the other hand, the title of genius is only very occasionally bestowed on the discoverer of new facts or ideas in science. W. H. George, in his interesting book *The Scientist in Action*, has drawn what impresses me as a very valid distinction here between what he calls the *new* and the *essentially new*. The simply *new* concerns discoveries of a new fact which may never have been known before. Or it may concern a theory which modifies a previous one by adding some new consideration or factor. The *essentially new*, however, signifies an entirely fresh and different way of looking at things. Wordsworth shortly defined an act of genius as "the introduction of a new element into the intellectual universe." Thus Einstein's theory of relativity, although it modifies and adds to Newton's theory, was not evolved out of it as an extension; it came about from looking at certain physical phenomena in a radically new way.

George gives two examples to illustrate his point, and they are worth quoting. As a result of Sir Joseph Thomson's classical experiments, the phenomena of atomic physics were for 30 years described in terms of a particle of electricity, the now familiar electron. This concept served admirably to account for a wide range of phenomena, but certain optical ones caused a difficulty. Then de Broglie, in 1925, introduced an entirely different way of regarding an electron—namely, in terms of a wave—and to this day both these concepts have to be used for different purposes without any conclusion having been reached about which of the two is the more fundamental. Then, again, for aeons—in fact, until the turn of this century—all disease had always been regarded as being due to something which was not present in health attacking the body, whether this was a malignant demon, a draught of cold air, or an infectious agent. Drugs and other forms of treatment were simply designed to counteract the harmful things that were producing the illness. It was not until within living memory, in observations on scurvy culminating in Gowland Hopkins's brilliant experimental work, that it occurred to anyone that various diseases could be due merely to the *absence* of something in the body. That was an essentially new way of looking at the matter, and it has resulted in our present mass of complex knowledge about the various vitamins.

Darwin's doctrine of natural selection is another good example of an entirely new way of regarding the complex phenomena of living creatures. This feature has been commented on in respect of Freud. I will quote from a recent writer: "From time to time men of outstanding gifts alter our outlook on the world in one relatively restricted field or another. But changes in the fundamental categories in terms of which we interpret the world and each other, in the very framework of our thought and language, are rare in history; and more rarely still can we attribute such a change to one man. But about Sigmund Freud there can be no doubt."

A New Idea

Freud's genius is peculiarly interesting in that it has led to looking at mankind in an essentially new way, although what he actually discovered was not in itself so very new. It has been possible to trace most of Freud's ideas to earlier sources; whether he actually obtained them in that way or only from his personal investigations is another matter. That holds goods for the division of the mind, with a moral conflict between its two halves; the importance of sexuality in human life and even its specific connexion with the psychoneuroses; the significance of repression, and so on. In fact, so far as I know, there was only one idea he discovered which had never been previously recorded. It was a very important one: the universal fear of castration among men. Dr. Henri Ellenberger, who has devoted some years of research to the matter, extending through mediaeval to classical times, assures me that in spite of the age-old custom of castration in various communities he has not been able to find any mention of the *fear* of it in the writings of any historian, philosopher, or even psychiatrist. I have, however, recently come across the record of a patient who suffered from complete impotence as the result of his dreading castration at the hands of his father as a small child, and who was restored to complete potency when that fear was removed. The episode took place some three thousand years ago, and the gentleman was given the name of Iphiclus, "famous might," so the cure was very thorough. Psychotherapists received high fees in those days. The particular one who effected this cure, Melampus, who was reputed to antedate Aesculapius as the first physician, received a third of a kingdom and the king's daughter for his wife as a reward for curing her of a frenzy. In those days marriage with an ex-patient was not frowned on.

That for three thousand years this dread fear was never mentioned is a testimony to the desperate efforts we make to prevent ourselves from becoming aware of it. Freud may of course have been cognizant of the story in Greek literature, but if so it would afford one more illustration of the peculiar nature of his genius. For this consisted not so much in the discovery of new things but in the fearless and pioneering exploration of them. Through his detailed investigations, and not at all by personal propaganda, he compelled a section of the community, those with ears to hear, to accept a number of unwelcome but extremely important truths. He took seriously what had previously been hinted at, often merely whispered, and there is no doubt that an unusually high courage was an essential element in the achievement of his genius. Furthermore, although some achievements of genius have an unmistakable relation to the atmosphere of the period when they were accomplished, so that one feels someone else would surely have done the same thing, this was assuredly not true of Freud. One may legitimately doubt if anyone else would have come forward had Freud not done so. We might well have had to wait another hundred years or more for someone of his stature.

Sense of the Significant

Closely akin to this mysterious feeling for what is true seems to go a sense of the really significant. This enables a genius, or compels him, to generalize a finding where a lesser mortal would have cautiously gone on collecting more evidence before venturing on a general statement. Freud, although he would be accounted a man of sober and reflective judgment, afforded several instances of this kind of superlative boldness and sureness. When he discovered in himself the fear of castration he felt instinctively that the same must be true of all men, and when he also came across the Oedipus complex he did not hesitate to hold it valid not only for all those now on this earth but also for those who populated it many thousands of years ago. These were breath-taking generalizations, and it is not surprising that so many have balked at accepting them or have tried to limit them to certain societies only.

This remarkable capacity for perceiving with somnambulic sureness what is absolutely and universally true is of great interest. It transcends the simple love of truth itself, essential though this may be. I think it must occur at special moments when there is an unusual, and often only temporary, fusion of all the elements in the mind in a peculiar degree of harmony. The sureness arises from the completeness with which the ego is receiving in an unquestioning fashion the message from the preconscious. At that moment there is a complete coincidence between the striving of the id, the permission of the super-ego, the acceptance by the ego, and the external perception of the problem being studied. Emerson well said that "to believe your own thought, to believe that what is true for you in your private heart is true for all men—that is genius." Schopenhauer made a similar point when he said: "Always to see the general in the particular is the very foundation of genius."

Power of Concentration

The third attribute worthy of mention here is that of the power of concentration. There is no doubt that in the majority of instances important scientific discoveries have meant a great deal of hard work as well as intense concentration. Buffon, the great naturalist, considered that genius was nothing else than a greater aptitude for patience than that possessed by other men, which is rather like Carlyle's well-known dictum that "genius is first of all a transcendent capacity of taking trouble." Ramón y Cajal, the distinguished neurologist, described the process of scientific discovery as follows: "The ideal case would be that of a scientist who during his period of mental incubation would pay no heed to any thought that is extraneous to his problem, like a somnambulist who listens only to the words of the hypnotizer." And another writer, referring to "the self-surrender so familiar to creative minds," says: "The concentration of such a state may be so extreme that the worker may seem to himself or to others to be in a trance." In that connexion there comes to my mind an account Freud's daughter gave me of the time when he was composing the great final chapter of *The Interpretation of Dreams* in the summer of 1899. She recollected that when he was interrupted by being called to a meal he walked as if in a trance, oblivious of his surroundings.

At this point we enter the realm of depth psychology, and numerous problems throng upon us. What is the significance of this extraordinary concentration and intensity? What powerful impulses are driving their way at such moments? For there is every reason to suppose that men of genius are characterized by possessing exceptionally strong emotions and usually a correspondingly strong capacity for containing them. The tension induced by the preceding efforts to find a solution gradually mounts until it reaches a climax. The great mathematician of genius, Henri Poincaré, in describing how he made his own discoveries, said: "One is struck by these appearances of sudden illumination, obvious indications of a long course of previous unconscious work. . . . These sudden inspirations are never produced except after some days of voluntary efforts which appeared absolutely fruitless." Einstein has given a very similar description, and in the Fliess correspondence there are numerous allusions to the exhausting stress and strain Freud experienced in the continuously hard work of attaining his various pieces of insight. Kretschmer speaks of the great scientists' "passionate emotions developing which drive their thought constantly in the same direction, producing the utmost tension until at last a short-circuit occurs: somewhere a spark leaps to a new spot where up till then no human thought had ever passed."

What is the relation of the conscious interest in a particular problem to the unconscious forces that have produced so much tension? Müller-Freienfels maintains that what is characteristic is the being thrilled and gripped by the problem in some mysterious way that transcends in strength the mere desire to know, but perhaps he underestimates here the strength of just that desire in the unconscious. It is, however, noteworthy that he compares the thrill in question with the emotion of passionate love, and we are familiar enough with the connexion between the sexual instinct and the desire to know; it is a matter that Freud expounded fully in his work on Leonardo. Evidently there must be a special coincidence between the unconscious impulses and some essential feature of the objective problem. In the preliminary cogitation various shiftings and similar mechanisms are going on in the unconscious, the purpose of which is to achieve a sufficient degree of harmony with the censoring functions of the super-ego by means of which the accompanying guilt is kept in abeyance. At the successful moment there must have been achieved a quite remarkable degree of integration between the ego, the super-ego, and the id. It is no doubt this successful degree of synthesis, the overcoming of all barriers, that accounts for the sense of elation at the final moment of triumph. As is well known, such a complete synthesis is rarely more than a temporary one. The super-ego which has been circumvented soon resumes its sway, and elation is followed by self-criticism, disparagement, and even doubt about the solution reached. I have described at some length these phases which Freud underwent during and after one of his most difficult achievements: the composing of *Totem and Taboo*.

Prerequisites of Genius

I now come to a modest contribution which I think could be made to our knowledge of the conditions governing the productivity of genius. It had long struck me that an essential prerequisite of such productivity must lie in a particular scepticism on the part of the genius. He must have refused to acquiesce in certain previously accepted conclusions. This argues a kind of imperviousness to the opinions of others, notably of authorities. Furthermore, he often has the capacity of seeing the existence of a problem where others have passed it by; he has refused to take something for granted as being either without meaning or too insignificant to bother about. This aloofness sets him free to speculate and investigate. The classical example of scepticism being deliberately employed is of course that of Descartes, who tried to start by doubting everything. The task, however, proved harder than he had expected, and his scepticism did not prevent him from indulging in rather wild speculations in his theory of vortices.

I once asked Freud what he thought was the explanation of the extremely free thinking that scientific pioneers and discoverers must have. He did not answer the question directly, but he pointed out that such freedom is always obtained under the condition that another aspect of mental functioning is inhibited. The example he took was that of Forel. In the face of the puritanical atmosphere with which he was surrounded in Switzerland, Forel ventured to publish a book on sexual problems which at that time was considered shockingly outspoken. On the other hand, he became an extremely bigoted opponent of the custom of imbibing alcohol in any form. His fanaticism in this respect was so intense as to leave its mark on the present-day Zurich with its flourishing *Alkoholfreier Verein* that is to be seen nowhere else. He infected his successor Bleuler with the same fanaticism, and Jung attributed Bleuler's breach with him to the circumstance of Freud having induced Jung to depart from the faith and to taste the forbidden liquor.

It may well be that the compensatory inhibition of which Freud spoke is the explanation of a feature often remarked in men of genius—namely, a certain naïveté, marked simplicity, and ignorance of the ways of the world. One writer even commented on what he called the *scheinbare Dummheit* (apparent stupidity) often found in such men, though this must surely apply only to a small minority. I note, however, that Thomas Mann, in his famous description of Goethe, comments on "the union in one human being of the greatest intellectual gifts with the most amazing naïveté."

The scepticism and imperviousness to opinion of which I have spoken were prominent features of Freud's personality, and they extended over a wide field. Not long after getting to know him, however, I was struck by an exactly opposite feature, one which, it is true, operated in a far more limited field. I refer here to a curious credulity, a willingness to believe what he was told, whether it was really likely or not. To it I would ascribe his well-recognized difficulty in forming an accurate estimate of personal character, a deficiency of which he himself complained. In my biography I have given many examples of this credulity, which at times bordered on superstitiousness, but it is worth while commenting on what is perhaps the best-known example of it, since it was that feature which ultimately led him to make one of his very greatest discoveries. I refer to the years when he accepted as true the seduction stories of his patients, which I am sure the vast majority of physicians would have doubted at once and regarded as one more example of the unreliability of hysterics and their tendency to fabulation.

In relating this experience in later years Freud spoke of how despondent and baffled he felt when he found how

deceived he had been and that most of the stories were quite untrue. Baffled he doubtless was, but contemporary evidence in his letters to Fliess reveals that, so far from being despondent, he felt a quite inexplicable elation. He wrote the memorable words: "Can these doubts be only an episode on the way to further knowledge? . . . Between ourselves I have the feeling more of a triumph than of defeat." He could not know at that moment, though his unconscious evidently did, that he was on the brink of one of his most momentous discoveries—the significance of incestuous wishes in infancy.

Pascal pointed out that greatness is never at one extreme but consists of the union between two extremes, an idea which Sainte-Beuve later labelled the theory of the *entre-deux*. My own suggestion is a particular application of this.

In a proper scientific spirit I then wondered whether this observation I had made concerning Freud's personality could have any more general validity as a condition for the productivity of scientific men of genius, and the studies I have made of many of them encourage me to think that it may be so. Allow me to relate a few examples. I will start with the earliest in point of time, Copernicus. His work revolutionized our conception of man's place in the universe and reduced his glorious habitation to an insignificant speck of matter in space, so that Sir Arthur Balfour in one of his cynical moments could describe the story of mankind as "a disreputable episode in the history of one of the minor planets." Actually it is not certain that Copernicus was really convinced that the earth revolved round the sun, but he evidently ventured to doubt whether the sun went round *it*. So much for his scepticism. His reputation and the immortalizing of his name rest on that alone. But there is another side to the story, which throws light on the motives impelling him to his new conception.

It will be remembered that, starting from the Greek doctrines of perfect heavenly orbits, Ptolemy had constructed an extremely ingenious geometrical scheme of the universe as then known. He found it necessary, however, to introduce a number of what are called epicycles, and moreover to give some of them the form of an ellipse. The scheme worked fairly well for many centuries, but the progress in astronomical knowledge gave it what might be called increasing fits of indigestion which could be cured only by introducing more and more epicycles, so that ultimately the picture became one of bewildering complexity. Many attempts were made in the sixteenth century to simplify matters, including that by Copernicus. Now what really stirred Copernicus was a feeling of dismay and reprobation at Ptolemy's impiety in daring to depart from Aristotle's dictum that all the heavenly orbs and orbits must have the form of a perfect circle to conform with the perfection of the Divine Creator. Copernicus had an absolute belief in Aristotle's infallibility. Therein lay his credulity. And it drove him to search for methods of remedying Ptolemy's irreverence. He then found that by imagining the sun as the centre of the solar system he could devise a scheme, however faulty it afterwards proved to be, that could be built up with the desirable perfect circles. So he died a happy man. He was not the first to do the right thing for a wrong reason—Columbus had given an even more spectacular example not long before. Nor was he by any means the last.

Credulity of Great Men

We then come to the greatest genius of all times, Sir Isaac Newton. It would need an extremely expert mathematician indeed to elucidate the elements of scepticism and credulity entering into his great discoveries in science, nor is it likely that the data for doing so exist. On the other hand, it is easy to show that both these attributes were prominent in Newton's personality. His published scientific work is marked by a rigid objectivity, and it was he who proudly proclaimed the famous sentence, "*Hypotheses non fingo*" (I never manufacture hypotheses). He resolutely refused even to speculate on the actual nature of light or of gravitation, but contented himself with studying their mode of operation. Yet he had in earlier days spent much fruitless time in conducting experiments in alchemy, in the search for the philosopher's elixir, and the means of transmuting metals into gold, and this at a time when alchemy had long passed its prime. Most of Newton's biographers have suppressed the important fact that throughout his life theology was much more important to him than science, and, moreover, theology of a peculiarly arid and bigoted order. There was an astonishing contrast between the extreme credulity he displayed concerning the literal statements of the Old Testament and the scepticism he evinced concerning the cardinal doctrines of the New. He followed Bishop Ussher in dating the Creation from 4004 B.C., and on that basis and the data about the long lives of the patriarchs spent years in conjuring up a chronological history of all the nations of the world, in the course of which he came to unbelievably fantastic conclusions. He was especially engrossed in unravelling the obscure symbolism of the Books of Daniel and of Revelations. From the former he deduced that the tenth horn of the fourth beast must refer to the Roman Catholic Church and confidently predicted its downfall in the year 2000. Similarly, Halley's comet would probably after five or six revolutions fall into the sun so that the earth would be burnt up. He was also a devotee of Jacob Boehme's mysticism. Yet, on the other hand, although he was a constant adherent of the Church of England, he subscribed to the Arian doctrines which deny that of the Trinity and even went further in doubting the divinity of Jesus.

Newton had a markedly irritable and suspicious temperament, and much of the controversy that disfigured his life arose from his credulous belief in the statements of overcandid friends. In later life these qualities deteriorated for a while into paranoic delusions of persecution; perhaps in this connexion it is not irrelevant to remark that Newton never fell in love and never married.

Faraday, the supreme physicist of the nineteenth century, had also his vein of credulousness. He said: "In early life I was a very imaginative lively person who could believe in *The Arabian Nights* as easily as in the *Encyclopaedia*, but facts were important to me and saved me." Throughout his life he was an adherent of the obscure sect of Sandemanians, followers of the religious prophet Robert Sandeman, and for three years regularly preached sermons before them. One must place this in contrast with Faraday's exceptional intelligence in other spheres, since it would be commonplace otherwise.

Darwin was a man of far more placid temperament, and it is probable that any turmoil of emotions found their expression in the psychosomatic afflictions to which he was a martyr. Although destined for the Church, he came gradually to doubt the truth of the official religious doctrine that mankind had been created in God's image for the edification and glory of the Lord of the Universe; in this he was influenced by Lyell's work in geology and perhaps also by his grandfather's teaching on evolution. But his scepticism was tempered by a credulous attitude towards other authorities. Even after his great discovery of the operation of evolution through natural selection he still believed in Lamarck's doctrine of evolution through the inheritance of acquired characters, a doctrine his own work had rendered superfluous and indeed erroneous. It was because of it that he developed his extraordinary theory of pangenesis, according to which minute gemmules in the blood convey the acquired alterations to the germ cells, cells which we know now to be impervious to any such influence.

His friend and contemporary Huxley offers a very interesting contrast to the genius Darwin. Although possessing a wider knowledge than Darwin, and gifted with more originality and a greater intellectual daring, Huxley's actual achievements are of a different order. On first reading Darwin's theory he exclaimed: "How extremely stupid of me not to have thought of that." Now, Huxley was endowed with any amount of scepticism, of indeed a rather pugnacious brand. It has been said of him: "He allowed

himself no prejudice, no sentimentalities, no illusions." But there is no record in his life of any evidence of credulousness to match it and, according to my view, to enable him to make really great discoveries.

Perhaps it is worth mentioning in the present connexion the remarkable epidemic of belief in the cruder aspects of spiritualism that infected several of the leading English physicists early this century: Sir William Barrett, Sir William Crookes, Sir Oliver Lodge, and Sir George Stokes. The number of times the mediums in which they trusted were exposed as frauds made no difference to the tenacity of their beliefs.

Psycho-Analytical Considerations

It would not be out of place on this occasion if I concluded with a reference to some psycho-analytical considerations. The only point I wish to bring forward here is the suggestion of a possible correlation between the credulousness on which I have been laying stress and the characteristically receptive nature of genius. A credulous attitude betokens an uncritical, excessive open-mindedness towards environmental stimuli, and this must go hand in hand with a similar uncritical open-mindedness towards the ideas pressing forward from the preconscious and ultimately from the id. It can afford to be uncritical here because of the relaxing of the inner censorship when harmony is established for the moment between the three mental institutions, ego, super-ego, and id. All this, however, represents only the preliminary stage of the process—an essential one, it is true. It is followed by a far more critical stage during the final act of formulating the new theory or conception. In this stage there is a strict criticism of the incoming ideas combined with an exclusion or even oblivion of the outer world when outer stimuli are regarded as a hostile interference, as in the case of Archimedes they certainly were. The intense concentration of this stage may culminate in the state of trance mentioned earlier.

Now in the first stage the passive, almost self-effacing role of the ego in accepting the ideas pressing in from the preconscious must surely be associated with the more feminine aspect of the personality or, as Freud preferred to term it, "the attitude of passive aims." It cannot be chance that so many words describing the process are taken from bodily analogies. The very word "inspiration" signifies a taking-in act on the part of the body. Poets often speak of being pregnant with their fancies, and the words "to conceive" and "to produce" equally apply to bodily activities. A writer can describe his mood as being in labour with an idea or actually giving birth to one. Furthermore, it is noteworthy how often, as constantly happened with Freud himself, the fomenting gestation of thought that precedes that final illumination is accompanied by just that kind of bodily discomfort that suggests the pains of labour. That women have more direct means of expressing this instinct would then account for the undeniable fact of major creative thinking being almost a prerogative of the male sex. It is their substitute, the only one available to them, for the gift of bodily creation bestowed on women.

Conclusion

I will conclude by recalling your thoughts to the man in whose honour this address is given. It will probably be generations before all the implications of his ideas are fully worked out and the stimuli he provided for us fully acted on. Revolutions in thought such as he brought about do not happen very often in history, and it may well be long before another similar one takes place. We do not even know in what sphere of psychology to expect it; it might be one in the genetics of the mind or, on the other hand, in the field of social psychology. In the meantime what can we feel but gratitude towards the memory of a man who gave so richly and so generously? Truly one may well say with his favourite prince: "I shall not look upon his like again."

AMNION IMPLANTATION IN PERIPHERAL VASCULAR DISEASE

BY

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The purpose of this article is to report the effect on intermittent claudication of implanting human amnion into the thigh in 40 cases of peripheral vascular disease. This procedure was adopted because it had been observed (Troensegaard-Hansen, 1950; Shaw and Troensegaard-Hansen, 1952) that amnioplasty carried out for the treatment of leg ulcers in cases of peripheral vascular disease was followed not only by healing of the ulcer but also by a reduction in the severity of intermittent claudication. That such reduction might not be due solely to the healing of the ulcer was suggested by the fact that several patients claimed that their claudication was less than it had been before the ulcer appeared.

Material

The present series consists of 40 male patients. Their ages varied from 35 to 89, with an average of 60 years. They were selected as being in groups 1 and 2 of intermittent claudication (Professor Boyd's classification). The claudication was due to arteriosclerosis in 38 cases and to Buerger's disease in 2. Symptoms had been present for more than six months in the majority (Table I), and conservative treatment had been applied without significant effect in all of them. Three had been subjected to sympathectomy without effect on the claudication.

The pre- and post-operative condition of the patients was assessed by their tolerance to exercise, the presence or absence of rest pain, the radioactive sodium test, oscillometry, radiography, and skin temperature recordings.

Methods of Investigation

Tolerance to Exercise.—The criteria for tolerance to exercise were walking distance and ergometry. By walking distance is meant the distance which the patient can walk under controlled conditions before the onset of pain in the calf. By ergometry is meant controlled exercise on an ergometer. Two types of ergometers were used. In the first type, devised by Mr. N. C. Lake, the patient rhythmically depresses and releases a pedal, so raising a known weight through a standard distance once per second. This frequency was indicated to the patient by a swinging pendulum. The second ergometer was of the bicycle type, and was pedalled at a standard rate against a constant resistance. The patients' tolerance to these exercises was expressed as time (seconds) required to produce pain in the calf, and is referred to in Table I under ergometry as pain threshold in seconds. Rest pain was assessed in terms of severity, frequency, and duration.

Radioactive sodium tests (see below) were done on normals, on claudicants, and on patients having varied treatment.

Oscillometry was carried out, using a Pachon type of oscillometer. The maximum deflections were noted at different pressures and recorded (Table I).

X-ray examination of the patients' legs for evidence of arterial calcification was carried out.

Skin temperature of the limbs was recorded by means of a mercury skin thermometer.

Radioactive Sodium Test

The radioactive sodium test as described by Kety (1949) and modified by D. Walder (1953) was used for estimating the variations in blood circulation of the limb. This test has been used to determine changes in the arterial blood flow occurring after the use of certain vasodilators. As small variations can be detected the test is suitable for indicating changes that might occur following the treatment devised. Forty radioactive sodium tests have been done up to the time of writing, in 16 cases both before and after implantation. 24 cases had only post-implantation tests, as these were early cases before the radioactive sodium test had been started.

In this test from 0.06 to 0.15 ml. of saline containing 30 microcuries of radioactive sodium was injected into the calf muscle to a depth of 2.5 cm. from the surface, and its rate of disappearance from the area was judged by the decrease in counting rate from a Geiger counter strapped to the calf, this being recorded on a ratemeter. For the first four minutes the patient stood at rest; he was then exercised by making him rise on his toes once per second, timed by a swinging pendulum for a period of two minutes. Finally, the readings were continued while he was at rest for a period of five to eight minutes. The fall in radioactivity was plotted logarithmically against time. In normal patients (Fig. 1) the fall was regular and the rate of fall increased during exercise. In a patient with intermittent claudication the graph deviated from the normal during the period of exercise (Figs. 2 and 3). The occurrence of the "hump" (A and B in Fig. 2) was thought to be due to poor arteriolar

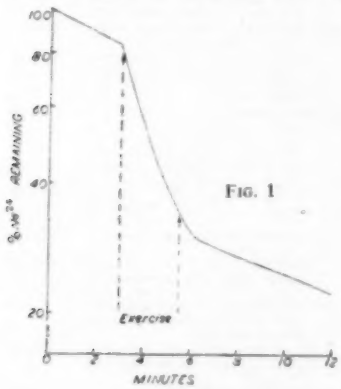

FIG. 1

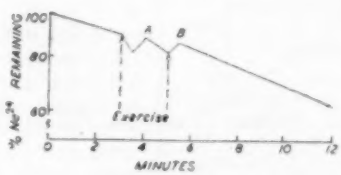

FIG. 2

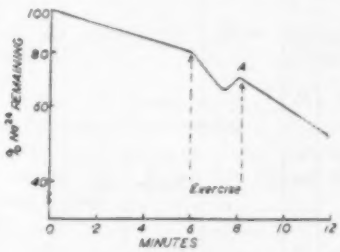

FIG. 3

FIG. 1.—Normal curve of left leg showing straight line in inter-exercise period. Return to pre-exercise level within one minute. FIG. 2.—Before treatment, showing claudication. A denotes inter-exercise hump. B denotes post-exercise hump. Shallow curve. FIG. 3.—Claudication curve before treatment showing notched inter-exercise period.

TABLE I.—*Data Following Amnion Implants in Intermittent Claudication*

Case No.	Age	Diagnosis	Duration of Disease	Ergometry Pain Threshold in Seconds		^{24}Na (Radioactive Sodium)		Pain Threshold to Walking		Oscillometry in Deflections		Follow-up and Results	Date of Implant
				Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.		
1	55	Arterio-sclerosis	7 mths.	20	None	Claudi-cating graph	Normal	10 yds.	¼ mile	Flicker	Flicker	First implant septic. No improvement	9/2/55
												Reimplanted—satisfactory. Back at work. 8 months since implant. Good result	26/9/55
2	56	,,	1 yr.	45	240	,,	,,	75 ,,	½ ,,	¼	¼	First implant septic—no improvement	19/5/54
												Reimplanted. Over 7 months since implant. Result good. Working as postman	5/1/55
3	67	,,	2 yrs.	90	300	,,	,,	50 ,,	1 ,,	Nil	¼	Walking well. No pain at all. 9 months since implant	2/11/55
4	66	Arterio-scler. + coronary thrombosis	4 ,,	40	None	,,	,,	100 ,,	1 ,,	¼	1¼	First implant septic: no improvement. No calf pain at all. Reimplanted. Foot aches after 1 mile walking quickly. 8 months since implant	17/5/55
5	57	Arterio-sclerosis	1 year	30	,,	Not done	,,	10 ,,	3½ miles	1	5	Very good result. Completely normal. 3 years since implant	31/10/52
6	53	,,	1 ,,	20	150	,,	,,	50 ,,	1 mile	R. 1 L. 5	R. 5 L. 8	Completely normal. 1 year 7 months since implant	24/3/54
7	78	,,	13 yrs.	18	90	,,	Not done	10 ,,	½ ,,	0	R. 3 L. 2	Walking briskly. No pain when last seen. 1 year since implant	6/10/54
8	70	,,	6 mths.	50	None	Cl. graph	Normal	100 ,,	7 miles No pain	R. ¼ L. 0	R. 3 L. 4	Walking normally. Back to work. 7 months since implant	13/4/55
9	50	,,	2 yrs.	50	,,	Not done	,,	100 ,,	½ mile	½	½	Walks ½ mile up a slope with no pain. Pulsation previously absent in the foot is now felt. Excellent result. 1 year since implant	7/12/54
10	53	,,	4 ,,	12	50	,,	Not done	50 ,,	2 miles	0	2	Walked 2 miles a day for 10 days with no pain at all. Started running after discharge from hospital with complete relapse. Classed as a failure	11/12/51
11	89	,,	3 mths.	Not done	Not done	,,	,,	Bedridden		0	0	Had a static senile gangrene of one toe. Within 10 days of implant gangrene became moist and spread over the foot. High amputation followed. Classed as a failure	12/4/54
12	35	Buerger's disease	2 yrs.	14	90	,,	Normal	50 yds.	½ mile	1	1	Result fair. 15 months since implant. Buerger's disease has been complicated by cerebrospinal meningitis and wasting of affected leg with bilateral deep thrombosis	12/5/54

Continued overleaf

TABLE I.—*Data Following Amnion Implants in Intermittent Claudication—contd.*

Case No.	Age	Diagnosis	Duration of Disease	Ergometry Pain Threshold in Seconds		^{24}Na (Radioactive Sodium)		Pain Threshold to Walking		Oscillometry in Deflections		Follow-up and Results	Date of Implant
				Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.		
13	71	Arterio-scler.	3 mths.	Not done	Not done	Not done	Not done	Not done	Not done	Not done	Not done	Static senile gangrene. Became moist, with rapid spread up foot within 10 days of amnion implant. High amputation. Classed as failure	14/7/55
14	74	"	3 "	"	"	"	"	50 yds.	1 mile	"	"	Good result. No claudication when last seen, has malleolar ulceration, which is healing. Ulceration impedes his capacity for walking. 6 months since implant	1 9 53
15	64	"	6 "	90	None	"	Normal	200 "	1½ miles	R. 4 L. 5	R. 8 L. 7	Very good result. Walking well. No pain. Over 5 months since implant	4/5/55
16	53	"	2 weeks	45	300	Cl. graph	"	40 "	1 mile	R. 0 L. 2	R. 2 L. 3	Eight months since implant. Good result. Walking well. Back at work	15/12/54
17	60	"	1 yr.	50	None	Not done	"	20 "	1½ miles	R. 1 L. 1	R. 1 L. 2	17 months since implant. Walking well. Implant went septic. Gets slight cramp after 1½ miles, occasionally after less than 1½ miles. Back at work. Result fair	10/3/54
18	64	"	2 mths.	35	135	"	"	50 "	1 mile	R. 1 L. 3	R. 2 L. 3	Very good result. There was some doubt whether this case was a typical claudication. 12 months since implant	8/10/54
19	71	"	2 yrs.	45	135	"	"	100 "	1 "	R. 1 L. 1	R. 2½ L. 1½	Very good result. After 1 mile quick walking is tired, but no pain in the calf. Untreated left leg still shows some claudication. He is due for another implant. 7 months since implant	5/1/55
20	69	"	6 mths.	Not done	Not done	"	Not done	Not done	Not done	Not done	Not done	Bilateral claudication. Implant done 2 years ago. Within 10 days of implant, existing dry gangrene spread. High amputation. Failure	18/12/53
21	73	"	6 "	"	"	"	"	20 yds.	1½ miles	"	"	Over 2 years since implant. Claudication completely dispersed. His hands, which were white (Raynaud's) are now pink and warm with no Raynaud's phenomenon. Result excellent	18/11/53
22	71	"	3 yrs.	1	75	"	Normal	20 "	1 mile	R. 2 L. ½	R. 2 L. 3	Result very good. Eight months since implant. Is walking well. No pains	22/12/54
23	59	"	1 yr.	Not done	Not done	"	Not done	Could not walk	2½ miles	Not done	Not done	Very good. Lost right leg earlier owing to gangrene. Despite sympathectomy this patient had claudication in his left leg. 4 years after implant. No claudication at all	1/8/51
24	59	"	2½ yrs.	26	None	"	Normal	100 yds.	250 yds.	R. ½ L. ½	R. ½ L. ½	Old case of bilateral Achilles tenotomy which prevents quick walking. Claudication was present, but abolished after implant. 15 months since implant	19/5/54
25	52	"	10 "	45	130	Cl. graph	"	100 "	½ mile	R. ½ L. ½	R. ½ L. ½	Eight months since implant. Right leg excellent; left leg only fair. His last left implant went septic. Needs another implant. Right leg—painless	12/10/55
26	49	"	9 mths.	90	260	Not done	"	50 "	1 "	R. 1 L. 1	R. 2 L. 1	Very good result. Can now walk up a steep slope. No pain at all. 8 months since implant	7/12/54
27	51	"	1 yr.	R. 90 L. 69	None "	R. N. L. Cl.	R. N L. N.	50 "	2 miles	R. 3 L. 0	R. 4 L. 2	Excellent result. Can go shooting or fishing for miles	16/8/55
28	54	"	14 yrs.	R. 45 L. 66	120 None	R. Cl. L. N.	R. N. L. N.	100 "	½ mile	R. ½ L. ½	R. ¾ L. 1	Result good. No pain on walking ½ mile	R. 12/10/55 L. 2/3/55
29	58	"	4 yrs.	R. 90 L. 65	" "	R. Cl. L. Cl.	R. N. L. N.	200 "	3 miles	R. 1 L. 1	R. 2 L. 2	Had bilateral sympathecomy— no improvement. Excellent result. Walks 3 miles easily	R. 12/10/55
30	26	Buerger's disease	4 "	R. 60 L. 200	" 200	R. Cl. L. not done	R. N. L. N.	400 "	2 "	R. 0 L. 4	R. 3 L. 4	Left sympathectomy 1953—deteriorating left side. Very good result. Walks 3 miles	4/10/55
31	61	Arterio-scler.	4 "	R. 28 L. 26	180 None	R. Cl. L. Cl.	R. imp. L. N.	100 "	1 mile	R. 0 L. 0	R. 1 L. 0	Achilles tenotomy. Good result. No claudication after 1 mile	29/11/55
32	51	"	10 mths.	R. 60	R. None	R. poor clearance	R. N.	80 "	400 yds.	R. 4–5	R. 4–9	Good result; walks 400 yards comfortably. Feels great improvement in spite of short distances	1/7/55
33	68	"	3 mths.	L. 60 R. 180	L. " R. "	L. — R. poor clearance	L. N. R. N	200 "	1½ miles	L. 7–11 R. 0	L. 7–11 R. 5–8	Oscillometry increase—no pain on walking 1½ miles	7/12/55
34	68	"	2 yrs.	L. None R. 90 L. 65	L. " R. " L. "	L. — R. Cl. L. Cl.	L. N. R. N. L. N.	50 "	1 "	L. 4–5 R. 0 L. ¼	L. 5–10 R. 1 L. 5–8	Very good result. No complaints	2/11/55
35	66	"	2 "	R. None L. 15	R. " L. 240	R. Cl. L. Cl.	R. N. L. N.	10 "	¼ mile	R. 5–6 L. 0	R. 5–6 L. 5–6	Left implant. Left leg normal. R. Fair result. Can now do her shopping. Stops at 150–200 L. yards, but quickly walks on	16/11/55 8/1/56
36	66	"	3 mths.	R. None L. 60	R. None L. "	R. N. L. Cl.	R. N. L. Imp.	20 "	2 miles	R. 2 L. 0	R. 2 L. 2	Good result; back at work. Poor radioactive sodium clearance	9/11/55
37	63	"	1 yr.	R. 50	R. "	R. poor clearance	R. Imp.	200 "	3 "	R. 1	R. 3	Good result. Feels quite normal. Poor radioactive sodium clearance	16/11/55
38	74	"	3 yrs.	L. None R. 75 L. 60	L. " R. " L. "	L. N. R. Cl. L. Cl.	L. N. R. N. L. Cl.	¼ mile	1½ miles	L. 0 R. 0 L. 0	L. 2 R. 4–8 L. 5–6	Walks 1½ miles. 1 mile briskly. R. Result very good	26/10/55 L. 14/12/55
39	61	"	6 mths.	R. 60	R. "	R. Cl.	R. N.	¼ mile	1½ miles	R. 0	R. 2 (5–7)	Excellent result in spite of sepsis and only improvement on sodium test	5.4.55
40	58	"	6 "	L. None R. 120 L. 80	L. " R. 180 L. 180	L. — Cl. graph	L. Imp.	300 yds.	1½ "	L. 4–6 R. 4½–6½ L. 0	L. 4–9 R. 4½–6½ L. 3–4	Results have been dramatic. Can now walk ¾ mile up a steep slope. Has walked 1½ miles without pain	

circulation with a capillary reflux, thus raising the sodium level. Although the curves are as a rule reproducible it has been found so far impossible after implantation to reproduce the pre-implant "hump" in three cases in spite of their being exercised to exhaustion. The slope of the curves varies, and it was thought the steeper the slope the greater the vascularity of the limb. However, it must be considered that the site of the injection must in some way be responsible for the slope; thus an injection made into vascular muscle must give a steeper clearance than one made into fascia, fat, or areolar tissue.

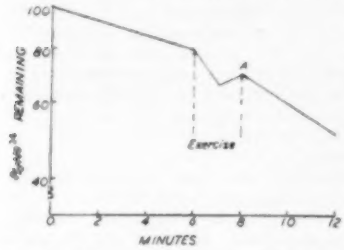

FIG. 4.—Same case as Fig. 3. Right leg after control implant, showing claudication curve. Note inter-exercise hump at A.

Lastly, we have tried to find some explanation of the hump of the claudication graph. Accordingly, radioactive isotope sodium was injected into the calf of a normal patient. The arterial flow in the thigh was blocked by a sphygmomanometer cuff, the pressure of which was raised above the systolic blood pressure. The graph compared with that of a patient suffering from mild intermittent claudication. In the same case

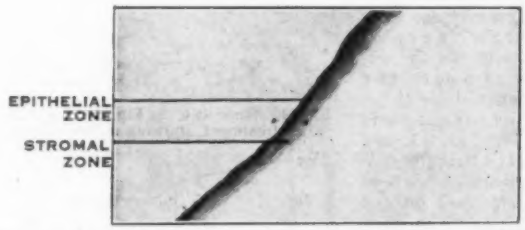

FIG. 5.—Macerated inactive amnion showing loss of cell nuclei. (×175.)

the venous flow was then occluded by a sphygmomanometer cuff with a pressure just sufficient to block the venous return. The radioactive sodium test in this case, however, showed no hold-up. It is therefore assumed

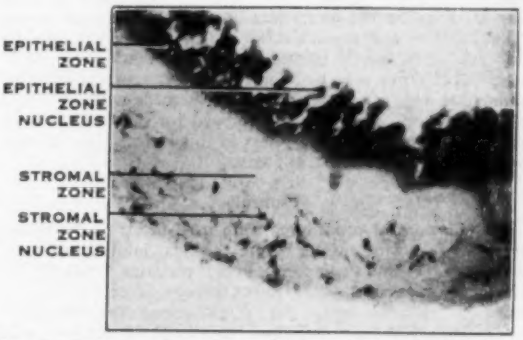

FIG. 6.—Active amnion with nuclei in stroma and epithelium. (×175.)

that the features of the radioactive sodium test are attributable to arterial flow and its variations, and not to venous occlusion.

Procedure of Amnion Implantation

Human amnion was collected immediately after delivery and stored at 0° C. for five days. It was then cleaned on the chorionic side only, care being taken not to damage the epithelial layer. The tough adherent mucus was removed, after which the membrane appeared to be clear. The amnion was boiled for three minutes and was then ready for immediate use. For storage purposes this procedure must be followed by stretching and drying in warm air, with subsequent reboiling before use to ensure sterility, but this does not seem quite so effective as the former method for immediate use.

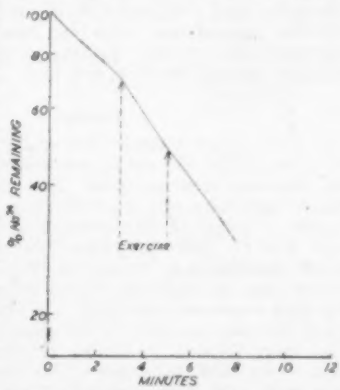

FIG. 7.—Same case as Figs. 3 and 4. Normal curve after satisfactory implant.

The amnion was then implanted under local analgesia in the form of two pieces each 7 by 5 cm. tightly rolled

TABLE II.—*Details of Six Specimen Control Cases*

Case No.	Age	Diagnosis	Duration of Disease	Ergometry Pain Threshold in Seconds		^{24}Na (Radioactive Sodium)		Pain Threshold to Walking		Oscillometry in Deflections		Follow-up and Results
								Yards	Miles			
				Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.	Pre-op.	Post-op.	
1	55	Arterio-sclerosis + Diabetes. Coronary disease	7 mths.	20	No change	Cl. graph	Cl. graph	10 yds.	No change	Flicker	No change	Patient states no change. Claudication as severe as before
2	56	Arterio-sclerosis	1 year	45	,,	,,	,,	75 ,,	,,	½	,,	No change
4	66	Arterio-sclerosis + cor. thrombosis	4 years	40	,,	,,	,,	100 ,,	,,	½	,,	,, ,,
7	78	Arterio-sclerosis	13 ,,	18	,,	,,	,,	10 ,,	,,	0	,,	,, ,,
16	53	,,	2 weeks	45	,	,,	,,	40 ,,	,,	R. 0 L. 2	,,	Improved for ten days, then relapse
18	64	,,	2 mths.	35	55	,,	,,	50 ,,	,,	R. 1 L. 3	,,	Two months slight improvement. Relapse after 14 days

together. The "pencil" so made was implanted deep to the fat lying on the fascia lata on the lateral aspect of the thigh, and in our present series we have used the affected leg. A strict aseptic technique in an operating theatre is essential if sepsis is to be avoided. Under sepsis is included reddening and, of course, induration with or without actual pus formation. Bed rest was allowed for only 48 hours in some cases, but was usually less in this series. The stitches were removed on the tenth day.

Controls

Certain control procedures were used in 20 of the cases, with the following results before the final implant was carried out: (1) Simple incision under procaine anaesthesia: this had no effect. (2) Subcutaneous injection of 0.5 mg. of histamine into the thigh raised the threshold for claudication for a period of from 10 to 90 minutes, with subsequent return of the initial condition. (3) Implantation of amnion which had been so treated as to remove the epithelium with loss of all cellular and nuclear structure (Table II and Figs. 4 and 5): intermittent claudication was unaffected and the radioactive sodium test gave a claudication curve (Fig. 4). These patients were led to believe that the control measures would give relief to their symptoms. This was done in order to exclude the possibility that any benefit that was derived might have been the result of psychological influences. In Cases 16 and 18 slight changes occurred (Table II), but in the other 18 cases no change followed control treatment. There was both subjective and objective improvement when the same cases were later implanted with a similar quantity of amnion prepared by our own methods (Figs. 6 and 7).

Results

In Table I are recorded the results of this treatment. When the site of an implant was excised three weeks later and examined microscopically, there was no sign of the amnion and there was a considerable degree of vascular reaction in excess of that normally found round a foreign body (Fig. 8). After a successful implantation the patient usually experiences no change for 72 hours, then finds that the legs, and especially the implanted one—that is, affected leg—feels warm and less numb. The skin temperature rises, cramp becomes less, and effort tolerance is steadily increased. Four cases (Nos. 1, 2, 4, and 17) showed sepsis at the implant site with no improvement either subjectively or objectively, and these were subsequently satisfactorily reimplanted with good results. It has also been found that some amnion is ineffective for reasons yet unknown. It is possible that in the preparation of the amnion the epithelial layer has been damaged or the nucleated element destroyed by heat-drying. All cases that have shown no improvement after implantation have been reimplanted until claudication disappeared. One case had to be reimplanted four times before a satisfactory result followed. After satisfactory implantation claudication disappeared in 29 cases, became less in 7, and persisted unchanged in 4; of these failures one was in group 2 claudication, and the three other failures had pre-existing gangrene, which we now know contraindicates implantation.

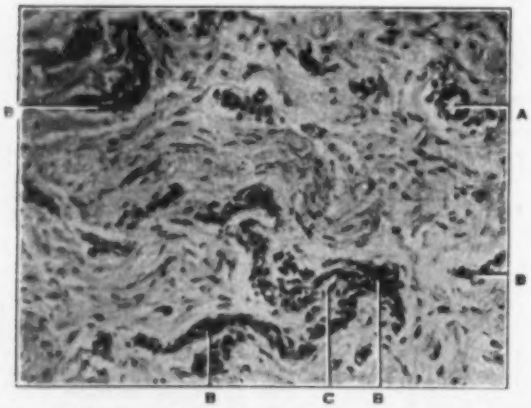

FIG. 8.—Section of amnion implant A and B, small blood vessels. C, endothelial cell. Numerous capillaries with hyperplastic endothelium. No foreign body reaction is visible. (×210.)

In the three latter cases, all suffering from a relatively dry senile gangrene, amnion implantation was followed by an advancing wet gangrene, and each patient subsequently had high amputation (Nos. 11, 13, and 20). In the cases where claudication disappeared there was an improvement of the arterial circulation as evidenced by (1) improved exercise tolerance (Table I), and (2) increase in the dispersion rate of radioactive sodium from the calf (Figs. 2 and 9, and 10 and 11), with incidental increase in the skin temperature. In seven cases oscillometric increases were noted with changes from one to two deflections before treatment up to five deflections after treatment. In seven cases returning dorsalis pedis pulsation was noted. In six of the successful cases there was improvement of claudication of the opposite limb, and it has been noted in a case of bilateral claudication (Case 27) in which the radioactive sodium test was performed that the implanted leg gave a normal curve and the opposite limb a curve that was within normal limits which differed from the curve obtained before treatment (Figs. 12, 13, and 14). Recently, implantation has been performed on two patients with intermittent claudication who also suffered from Raynaud's phenomenon of the hands, and it has been observed that after exposure to cold the hands returned to normality in less than half the time taken before implantation.

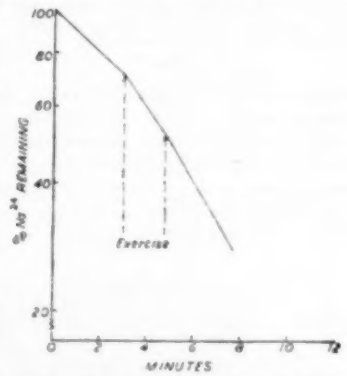

FIG. 9.—Same case as Fig. 2. Right leg after treatment, showing normal curve.

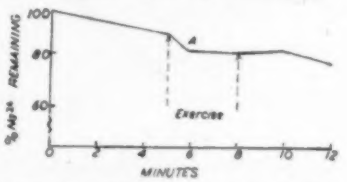

FIG. 10.—Right leg after septic implant showing claudication. Shallow curve levelled off at A.

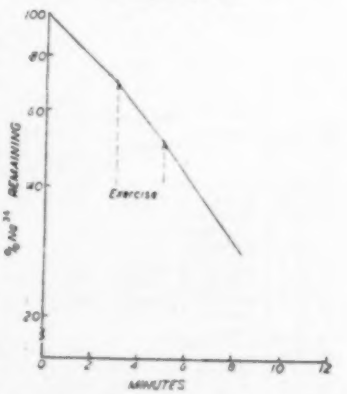

FIG. 11.—Same case as Fig. 10. Right leg after satisfactory implant, showing a normal curve.

Of the patients whose condition was improved by implantation, the six who had shown previous rest pain stated that this symptom disappeared 72 hours after the implantation. All cases successfully treated have been free from symptoms for periods as follows: two cases

over three and a half years, seven cases over one year, and the remainder for eight months, and it is worthy of note that no vasodilator drugs have been administered, and smoking is permitted in moderation.

Discussion

It is always difficult to assess the value of a particular form of treatment on peripheral vascular disease because of the natural tendency of the untreated case to fluctuate in severity from time to time and in view of the symptomatic improvement which sometimes follows non-specific forms of treatment or even bed rest alone. There has been a certain consistency, however, about the response to implantation of the amnion prepared in the way described above. The factors which cause intact amnion (Fig. 6) to call forth a reaction greatly in excess of what occurs with macerated amnion (Fig. 5) seem to be associated with the nucleated elements of the epithelial and stromal layers of the amnion. It would appear from these observations that the introduction of relatively intact human amnion (Fig. 6) in the manner described does influence the circulation in the limb treated. Beneficial effects on the opposite limb have been noted in six bilateral cases (Table I). Note also the changes in the radioactive sodium tests in Case 27 and the fact that patients suffering from Raynaud's phenomenon of the hands (two cases) and intermittent claudication who were treated for the latter had subjective improvement of the former complaint.

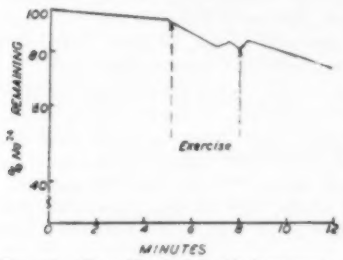

FIG. 12.—Case 27. Left leg before treatment.

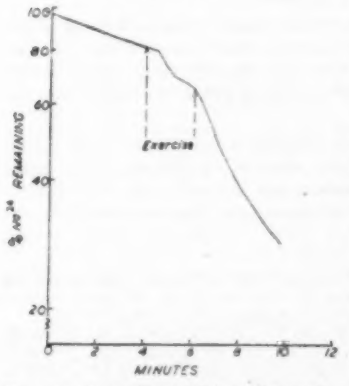

FIG. 13.—Case 27. Left leg after treatment.

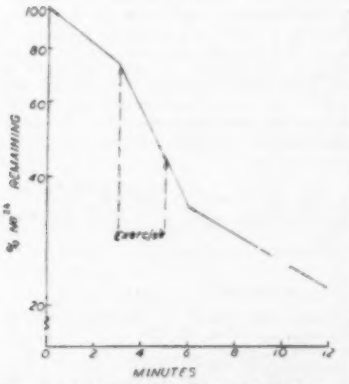

FIG. 14.—Case 27. Right leg after treatment

It is of interest that in three cases of relatively stationary dry gangrene subjected to amnion implantation all showed subsequent spreading wet gangrene, a result similar to that following application of warmth to a dry gangrenous limb. It can always be argued that any surgical intervention might influence tissue changes and could be responsible for the conversion of dry to wet gangrene. In attempting to explain these results, it is not unreasonable to suppose that the superficial circulatory changes following amnion implantation, as evidenced by the feeling of warmth and rise of temperature in the limb concerned, might also include the muscle vessels, so giving relief from claudication. The finding of relief from night pains is not inconsistent with this possibility.

The skin temperature generally fell by the end of one month, but when the radioactive sodium test was performed six weeks after the implant it showed improved sodium clearance from the calf, the curves reverting to the normal type, as demonstrated by 16 isotope curves before and after treatment. There is possible evidence, so far, of a permanent improvement in the muscle circulation. It may be noted that despite the fall in skin temperature the improvement of claudication persists.

The present uncertainty about the basic nature of claudication imposes great difficulty in attempting to explain the lasting improvement in exercise tolerance which appears to follow amnion implantation. When the limb has lost its pinkness or warmth and the temperature on both sides is the same the significant questions are whether the circulation in the limbs has become permanently increased compared with the pre-operative level, or whether the response to exercise is substantially different in the treated and untreated limbs or perhaps a combination of both.

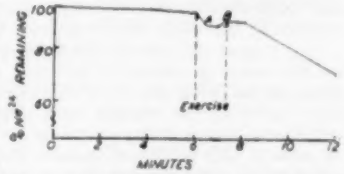

FIG. 15.—Right leg before sympathectomy. Foot cold. Pain stopped exercise. True claudication curve.

Examination of pre- and post-implantation radioactive sodium graphs (see illustrations), as indicated by their change from the claudication type to the normal, suggests that the reaction of the muscle flow returns to limits within normality. In view of the fact that the injection of radioactive sodium is intramuscular it may be supposed that the circulatory changes chiefly affect the muscle vessels.

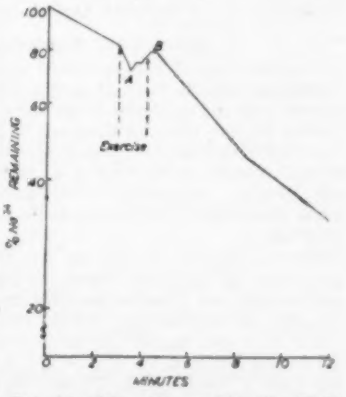

FIG. 16.—Same case as Fig. 15. Right leg after sympathectomy. Foot warm. Pain stopped exercise. True claudication curve.

It would be unjustifiable on present evidence to draw any conclusions about the resting levels of the circulation in the muscles concerned before and after treatment. However, it is noticeable that sometimes the slope of the radioactive sodium curve is steeper after implantation than before. This has been interpreted as being due to an increase in the circulation, but it is possible that the slope of the curve may depend on whether the injected radioactive sodium has initially lodged in tissue of high or low vascularity. Patients who complain of claudication state that their pain is diffuse, but if they are questioned carefully one finds the pain localized to the following sites: high in the calf or low down just above the upper limit of the Achilles tendon, the middle of the shin, and the dorso-medial and dorso-lateral aspects of the foot. Only too often do these patients show tender areas which have been corroborated by other workers. It is therefore natural to suppose that certain muscles show signs of ischaemia in preference to others and that special sites are commonly affected.

It must be mentioned that it is well known that some cases have intermittent claudication without the absence of dorsalis pedis pulsation. Thus it is possibly not essential to increase the general circulation of the leg to any great extent provided the local muscle circulation is suitably improved. Several cases are recorded where the superficial circulation has been improved by sympathectomy, with a resulting warm leg and foot without amelioration in claudication (Figs. 15 and 16). It is known that perineural injection of procaine temporarily, and even for long periods, does improve claudication, but it is difficult to give an explanation for this phenomenon. The best explanation is that of a trigger mechanism, a theory supported by Mr. N. C. Lake and others.

It is conceivable that since pain can cause reflex vasoconstriction (Doupe *et al.*, 1937; Travell *et al.*, 1944; Elliott, 1949) the pain caused by a portion of ischaemic muscle in the calf might cause constriction of the immediate collateral circulation with consequent increase of the area rendered ischaemic. If, however, some improvement in the muscle circulation were to occur after an implant then this postulated abnormal response to exercise might be abolished, the local circulation then responding in a physiological manner to the needs of the muscles in exercise.

The clinical effectiveness of the treatment would depend on the extent to which the collateral system is capable of development, while the ultimate duration of freedom from pain following the implant must depend on whether the underlying disease progresses or not. Examples are not rare of patients with peripheral vascular disease who have shown spontaneous improvement after a period of bed rest and have remained well for years, and it is then reasonable to think that the benefits of this local improved circulation would be felt by all the tissues and be maintained for prolonged periods, as shown in Table I, up to five years.

A Typical Good Result (Case 5)

A printer aged 57 complained of pain in both calves after walking as little as 10 to 15 yards. The pain was severe in the left calf and moderate in the right. This condition had existed for one year. A diagnosis of intermittent claudication was made one year previously. His treatment had been several courses of nicotinic acid, tolazoline hydrochloride, and Buerger's exercises; but he became worse, and developed intolerance to tolazoline hydrochloride (headache and vomiting).

On examination his left leg was of normal colour but cold, with no pulsation below the popliteal artery. No abnormality was found in the right leg. *X*-ray examination revealed no calcification. Temperature: right leg, 80° F. (26.7° C.); left leg, 78° F. (25.5° C.); right foot, 78° F. (25.5° C.); left foot, 75° F. (23.9° C.). Oscillometry: right leg, 5 deflections (8–13) at 250 mm. Hg; left leg, 1 deflection (8–9) at 250 mm. Hg. Ergometry: right leg, no discomfort; left leg, discomfort after 30 seconds, unbearable pain after 60 seconds.

Left amnion implant on October 31, 1952. Forty-eight hours after the implant the left leg and foot felt warmer and pain began to diminish. He was allowed to walk about the ward from morning to evening from the day after the implant. No bed rest was allowed. He walked continuously for two hours at a time with no pain and did not need sticks, which he had been using for support during the past year. Pulsation was felt in the left dorsalis pedis artery. On December 3 he could walk 200 yards at a fast pace up a slight incline. Temperature: right leg, 86° F. (30° C.); left leg 86° F. (30° C.); right foot, 80° F. (26.7° C.), left foot, 80° F. (26.7° C.). Oscillometry: right calf, 5 deflections (6–11) at 250 mm. Hg; left calf, 5 deflections (8–13) at 250 mm. Hg. Ergometry: no discomfort in either leg. Radioactive sodium test normal.

Final assessment: walks 3½ miles; perfectly fit; duration of improvement, 2 years 3 months.

Summary

Following a chance observation that amnioplasty carried out for the treatment of gravitational ulcers had a beneficial effect on intermittent claudication, amnion was implanted into the thigh in 40 cases of peripheral vascular disease with claudication.

In 29 cases the claudication disappeared and could not be produced by severe exercise. In seven cases exercise tolerance was increased but mild claudication was experienced during severe effort. There was complete failure in one case. In three cases with early dry gangrene the condition of the limb deteriorated after the implant and high amputation was required. Evidence of tissue necrosis is therefore regarded as a contraindication for this form of treatment.

Pre- and post-operative studies showed an increase in circulatory efficiency after treatment, as evidenced by increase in walking distance, exercise tolerance by ergometry, loss of rest pain, and the production of a normal radioactive sodium graph, whereas in 20 controls who received macerated amnion there was neither clinical improvement nor change in the results of objective tests. The main difference between the two types of amnion is the presence in the effective form of a well-defined nucleated epithelial and stromal layer.

Implants give rise locally to a vigorous outgrowth of capillaries and are absorbed in about three weeks. Clinical improvement begins in about three days and is maintained for a period that cannot yet be assessed. It has lasted for over three and half years in two cases, over one year in seven, and in the remainder over eight months. There have been four relapses in the series.

A possible explanation of the observed effects of amnion implants is discussed.

If an implant shows any signs of sepsis then generally no improvement is gained, either subjectively or objectively. However, very occasionally some improvement has been seen in spite of sepsis which has been subjective only.

It has been found that some amnion is inactive even after preparation by a standard technique, the explanation of which at present remains obscure. Reimplantation must always be carried out until claudication disappears.

This work has been made possible by a grant from the Clinical Research Subcommittee of Charing Cross Hospital, without whose continued support it could not have been completed. I would like to thank Mr. N. C. Lake and Dr. F. A. Elliott for their help and the reading of my paper; and Professor Paterson Ross, of St. Bartholomew's Hospital, and Dr. J. Lee, of the physiology department, Charing Cross Hospital, for helpful suggestions. I am grateful to Dr. Moore Patterson for his co-operation in the isotope work completed in the radiotherapy department of Charing Cross Hospital; and to Dr. D. N. Walder, of the Newcastle Infirmary, and Mr. N. Ramsay, physicist to Charing Cross Hospital, who enabled the radioactive sodium work to be carried out. I am indebted to the consultants of Charing Cross Hospital, to the many general practitioners who have sent me cases, and to the out-patient department, and to Messrs. Smith and Nephew Research Department for the supply of most of the amnion and for carrying out research on my behalf.

Addendum.—Since this work was completed 20 further cases have been treated in the same way, with complete remission of symptoms.

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SHOE-FITTING X-RAY FLUOROSCOPES

RADIATION MEASUREMENTS AND HAZARDS

BY

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The question of radiation hazards is a topical one, and some newspaper publicity has recently been given to a type of *x*-ray equipment which may be seen in shoe-shops in this country—the *x*-ray fluoroscope for demonstrating the fit of shoes. As long ago as September 2, 1950, the *British Medical Journal*, under the title "Radiation in the Shoe-Shop," drew attention to the potential hazards of such machines. Since then, measurements have been made on typical British machines, both in shoe-shops and on a recent type of machine which was loaned to A.E.R.E., Harwell, for testing. Before giving the results obtained, it is appropriate to describe some features of these machines. The terminology follows that in the Recommendations of the International Commission on Radiological Protection (1954), so, for example, r = roentgen and mr = milliroentgen (1/1000 roentgen).

Description and Use of Fluoroscopes

All the machines examined were British-made, and they are known by the trade name "pedoscope." The company which manufactures these machines gave every facility to enable measurements to be made.

The *x*-ray equipment is contained in the wooden base of the machine. There is a high-tension transformer rated at 42 kV (R.M.S.), with the mid-point of the high-tension winding earthed. Both ends of the *x*-ray tube are thus at high potential; the tube acts as its own rectifier, and the voltage across it reaches 53 kV peak. These *x*-ray tubes are run well within their rating, which results in a long operating life, and in addition there is no need to limit the screening time because of tube anode overheating. The equipment is controlled by three push-buttons at the side of the machine; they are labelled "Man," "Woman," and "Child," and they control the mains input to the high-tension transformer (by series resistors), and so the *x*-ray output. With the "Man" button the *x*-ray tube runs at 53 kV peak, 5 mA; with the "Woman" button, 51.5 kV peak, 4 mA; and with the "Child" button, 50 kV peak, 3 mA.

To screen this *x*-ray equipment, the wooden box is lined with lead sheet 1.2 mm. (18 S.W.G.) thick, except for a rectangular area in the top. This area is "bakelite" 1.5 mm. thick, and in the newer machines there is additional 0.5 mm. thick aluminum underneath it to increase the filtration. The bakelite is about 24 cm. above the focal spot of the *x*-ray tube, and mounted above the bakelite (or useful beam area) is the fluorescent screen covered with lead glass of 1.17 mm. lead equivalent. The main *x*-ray beam illuminates almost the whole of the fluorescent screen, except for narrow margins at the edges.

The foot opening in the viewing-hood is an outlet for radiation scattered from the useful *x*-ray beam, and strips of lead rubber are hung over this opening to absorb some of this scattered radiation.

In the latest machines the fluorescent screen is fixed in place (instead of tilting as in the machines tested) and there is additional lead screening surrounding the foot area and the fluorescent screen.

To use a fluoroscope, the subject stands on the top step of the machine, of which the bakelite useful beam area forms part. Above this is a viewing-hood, having three openings for viewing at the top. Only the front parts of the subject's feet project into this viewing-hood, and on the button being pressed a bright image is seen showing the bones of the anterior half of each foot, the shoe-nails, the outline of the shoes, and so on. Careful observation is required to make out the soft tissue of the feet, especially in the areas where corns and bunions occur.

In assessing the radiation hazards from these fluoroscopes it is necessary to estimate the time for which the *x*-ray equipment operates. The number of times a machine is used each day can vary between such wide limits that no generalization is possible; however, taking one *x*-ray viewing for each pair of shoes sold, the reader may speculate on the number of viewings each day or week at the local shoe-shop. Various observers have noted the duration of each separate viewing, and times between 5 and 20 seconds have been measured. The latest machines are fitted with a hand-set timer which limits each exposure to 10 seconds.

Radiation Measurements

Results of measurements on the recent type of machine are shown in the Diagram, in which the only measurement inside the machine is the 10.8 r/minute in the useful beam. Other results are given in Tables I and II.

TABLE I.—*Film Results: Recent Model Fluoroscope*

Film No.	Dose in r Recorded on Film	Dose Rate r/minute	Nearest Standardizing kV	Position of Film
1	1·00	12	83	5 seconds' exposure in useful beam, using "Man" button
2	1·10	13	83	
3	1·10	13	83	
4	0·35	4·2	83	5 seconds' exposure with ¼ in. (6 mm.) thick rubber sheet interposed in main beam to simulate a shoe sole. "Man" button
5	0·40	4·8	83	
6	0·37	4·4	83	

TABLE II.—*Film Results: Shoe-shop Fluoroscope*

Film No.	Dose in r Recorded on Film	Dose Rate r/minute	Nearest Standardizing kV	Position of Film
1	2·04	24	43	5 seconds' exposure in useful beam, using "Man" button
2	2·14	26	43	
3	1·88	23	43	
4	1·82	22	43	
5	0·21	2·5	63	5 seconds' exposure inside child's new shoe, heel end. "Man" button
6	0·71	8·5	63	5 seconds' exposure inside child's new shoe, sole end. "Man" button
7	0·72	8·6	63	
8	0·73	8·8	63	

The results shown in the Diagram were obtained from ionization measurements. A cylindrical ion chamber 20 cm. long and 8 cm. diameter and of about 1-litre volume was made, using *x*-ray film base, 0.007-in. (0.178-mm.) thick, graphited to make it conducting. Standard techniques were used for the insulation of this ion chamber, and for its voltage supply. The ion chamber was calibrated by comparison with a standardized Victoreen r meter; and, although it was convenient for measurements around fluoroscopes, it was too large to be completely irradiated by the useful beam when inserted through the foot opening of the machine. Other measurements were made, therefore, by using dental size *x*-ray films of the type used for personnel monitoring and special technique to allow for the low kilovoltage.

In using these fluoroscopes, feet are examined inside shoes, so some of the film measurements were made inside a shoe; and for the ion chamber measurements, a piece of ¼-in. (6-mm.) thick rubber sheet was used as a substitute for a shoe sole. Further measurements were made using the alternative "Woman" and "Child" control buttons; taking the "Man" results as 100%, the "Woman" results were approximately 75%, and the "Child" results approximately 60%.

*When the measurements described in this article were made the author was in the Health Physics Division, A.E.R.E., Harwell.

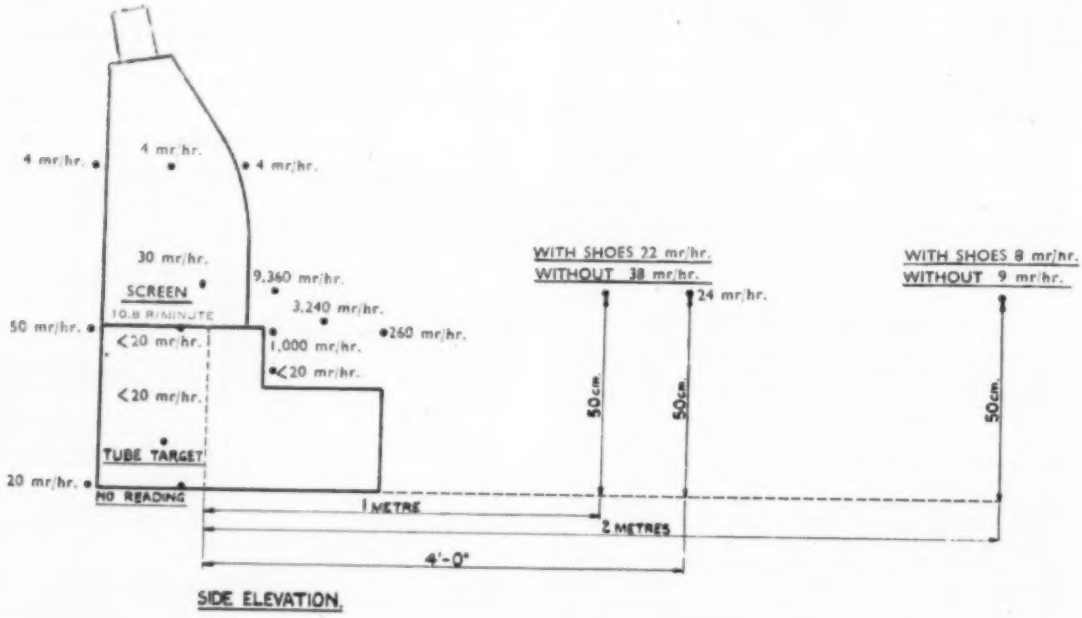
The cone of scattered radiation which emerged from the foot opening of the machine spread out as would be expected from the geometrical arrangement of the useful beam area and the foot-opening area.

Some of the scattered radiation measurements were repeated with the addition of a demonstration pair of shoes, complete with wooden feet and legs, inserted into the machine as a dummy customer.

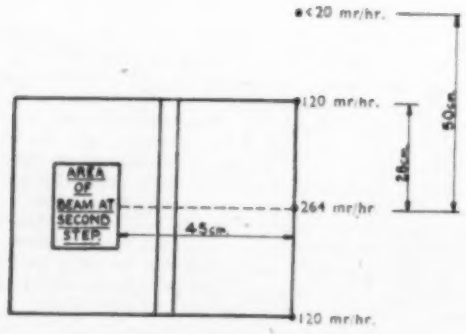
Minor radiation leaks were found around the wooden base of the machine where the top (which includes viewing-hood and foot platform) unscrews from the base when maintenance is required on the *x*-ray equipment.

American Radiation Measurements

In the *British Medical Journal* (1950) some American results are quoted and references given. The figures quoted in this paragraph are taken from these references. The American fluoroscopes described ran at about 50 kV, 3 to 8 mA tube current, and focus skin distance 7.5 to 20 cm. There is no mention of any added filtration. Many machines had a push-button timer, giving exposures of 5 to 45 seconds; about 20 seconds was the most popular time. Many measurements were quoted, made on 12 machines, by means of a Victoreen r meter in a shoe, and the range of dosage was from 30 to 350 r per minute. Values for the radiation

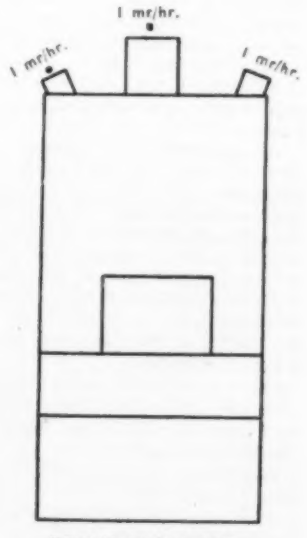


SIDE ELEVATION.



PLAN VIEW

<20 mr/hr.



FRONT ELEVATION

Test on recent model shoe-fitting fluoroscope. (Filter described as 0.5 mm. aluminium and 1.5 mm. bakelite.) Dosages, unless otherwise stated, were measured without shoes on platform, and were measured when "Man" button was pressed. "Woman" dose is approximately 75% of this, and "Child" dose approximately 60%. A ¼-in. (6-mm.) sheet of rubber simulating shoe soles reduces dosage received by feet while on platform to one-third.

scattered out through the foot opening were nearly all above 100 mr per hour at 10 feet (3 metres) distance, and 15 mr per hour at 25 feet (7.6 metres) distance. Close to the machines, almost all the radiation dose rates quoted were higher than the corresponding results in the Diagram (which relate to a British-made machine).

Possible Hazards from Shoe-fitting Fluoroscopes

In discussing the radiation dose rates described above, it is useful to consider the people at risk. Thus there is the customer in the shoe-shop who may have a brief look at his feet for a few seconds in the fluoroscope on the one or two occasions each year when he buys shoes. Alternatively, there is the customer who may peer at the screen picture for some time, with each of several pairs of shoes in one shop, and then go on to other shops and repeat the procedure. As well as irradiating his feet, the customer is subjected also to scattered radiation which reaches him through the foot opening of the machine and through the material of the viewing hood.

A special case of irradiation of the customer arises with children. The shoe-fitting fluoroscope does enable a parent to see an image of the child's feet in its shoes, and so form some idea of the fit of the shoes. However, from the point of view of radiation dosage, children are regular customers in the shoe-shop, and may have new shoes as often as every three months. Possible radiation effects to be considered include skin erythema, and there arises the general question of irradiating growing tissue, with the special case of irradiating the epiphyses of the foot. Cases are described in the literature in which the epiphyses round the knee were irradiated to slow down or stop growth of the leg (Spangler, 1941). Another case is described by Frantz (1950), in which a haemangioma of the leg and thigh of a baby was irradiated with 1,600 r of 135 kV *x* rays (4 mm. aluminium filter) during a period of six months; as the child grew there was gross shortening of the irradiated leg, as compared with the unirradiated one. Bisgard and Hunt (1936) describe experiments on the irradiation of femurs in young rabbits 3–5 weeks old. Subsequent microscopical examination showed cell damage in the epiphyses after 300 r or 200 r doses, but not after 100 r doses.

Besides irradiating customers, scattered radiation from these fluoroscopes irradiates the shop assistants. In a busy shop, with several assistants, a machine may be used many times a day, so that the dose accumulated by assistants over a period of time should be considered. There is the possibility also of irradiating the "people next door" (including above and below), but this is unlikely because the fluoroscope radiation is at low kV and so is readily absorbed in building materials such as brick and concrete. Along with the shop assistants one may include the customers in the shop; however (apart from actually using a fluoroscope), they will receive much less radiation than the shop assistants.

In addition to radiation hazards from fluoroscopes there is also the possibility of electrical hazards. In effect, one stands on a wooden box containing a generator giving several mA at about 50 kV. A substantial, well-earthed, and preferably *x*-ray-proof housing for this equipment is obviously desirable.

Radiation Hazards—Discussion

Comment here is confined to the measurements made on British machines, and the American results quoted above are not considered beyond noting that most of these American results are much higher than the corresponding British ones.

In considering the irradiation of the customers' feet by the useful beam, a standard of comparison is required. In the Recommendations of the International Commission on Radiological Protection* (1954), it is recommended that maximum permissible levels of radiation dose, for large populations, be kept below one-tenth of those recommended for radiation workers. In the particular case of irradiation to extremities such as the feet, this large-population maximum permissible dose is 0.15 r per week. Assuming that averaging of weekly dosage over a three-monthly period is permissible, this is equivalent to about 2 r per three months. The recent type of British machine (with its additional 0.5 mm. aluminium filter) gave a dose rate in shoes of about 4 r per minute. Thus the permissible 2 r per quarter year would allow, for example, three exposures of 10 seconds each, or two exposures of 15 seconds, and so on, in each three-monthly period. The dose rates measured in the shoe-shop machine were twice those of the recent type machine, which suggests either using shorter exposures or reducing the useful beam intensity, to keep doses within the permissible limit.

Useful beam intensities are progressively reduced when the "Woman" and "Child" control buttons are used; the reduction is from 100% ("Man" button) to 60% ("Child button). The I.C.R.P. recommendations refer to adults, and suggest also that lower limits are desirable for children. It may be desirable also to alter such limits for children of different ages. Although the reference quoted above shows that 100–200 r is required in a single dose to give detectable changes in epiphyses, children must be regarded as regular shoe-fitting fluoroscope viewers for periods of many years, so that it is the dose accumulated over a period of time which is the one to be considered, and this is the type of dosage considered by the I.C.R.P. in drawing up its recommendations on permissible weekly dose.

The "large population" figure of 0.15 r per week quoted above is suggested as an administrative level below which repeated radiation monitoring of the exposed personnel is not required. However, there is a further consideration, as, for example, the many papers at the International Conference, Geneva (1955), which discussed the genetic aspects of the total radiation dose accumulated by a population. A brief discussion of shoe-fitting fluoroscope doses and population dose is given in the next section.

It is interesting to compare shoe-fitting fluoroscope doses with those measured during *x*-ray diagnostic procedures. The I.C.R.P., for example, gives these figures for diagnostic fluoroscopy at 60 kV pulsating, 3 mA, and 35 cm. target-skin distance:

Equivalent filter	1·5 mm. Al	2 mm. Al	3 mm. Al
Average surface dose rate	7 r/minute	4·5 r/minute	3 r/minute

Other authors (Ardran and Crooks, 1952) also discuss fluoroscopy with additional aluminium filters up to 3 mm. thick. Comparing their results with 3-mm. filters with their results with no additional filter, they report reduced skin dosage with the 3-mm. filters, but no significant reduction in screen brilliance where the beam went through a patient; where there was no patient in the beam there was a reduction in screen brilliance. Applying these results to the shoe-fitting fluoroscope suggests that increased filtration would reduce dose to the customer while diminishing the screen brilliance only outside the outline of shoes; and a reduction of glare from the brightly lit periphery of the screen would assist observation of the foot image. In the present machines the tube runs at about 50 kV; a higher kilovoltage and more filtration may give as bright an image with less customer dosage.

From the results given in the Diagram, a calculation could be made of the dosage received by shop assistants standing in the area of scattered radiation; this would be compared with the value of 0.15 r per week used above. It is difficult to estimate how many times a machine is used in a week, how long the individual exposures are, and where the assistants stand; and so measurements were made by issuing film badges to some assistants, who wore them for a week. Only a minimal radiation dose (less than 10 mr) was

*Generally abbreviated to I.C.R.P.

measured on these films. The *British Medical Journal* (1950) quotes American results: 77 shoe salesmen carried film badges at work; two-thirds of these badges received no detectable amount of radiation, and of the rest only two received a dose around the maximum permissible level, and that at foot level (one of these film badges was carried in the trouser turn-up). It appears, therefore, that so long as the customer is adequately safeguarded shop assistants will receive little radiation dose.

Total Radiation Dose to the Population

Shoe-fitting fluoroscopes make some contribution to the total dose of radiation accumulated by the whole population of this country. Total dose is of interest because of its connexion with genetic effects in the population (International Conference, 1955), and the dose to be considered is that received by the gonads.

To compute the dose contributed by shoe-fitting fluoroscopes to the population of this country for a period of say a year, it is necessary to assume various typical figures about the machines used. The dose rates in question around a typical machine (see Diagram) are the 4 mr per hour figure against the viewing-hood for the customer examining his feet, and might be between 30 and 4 mr per hour for the nearest shop assistants, and about 4 mr per hour for other customers sitting in the vicinity of the machine (these values are not the actual tissue dose rates used in the calculation). It might be estimated that, for the whole population, each person examines one pair of shoes a year with a fluoroscope, and also that each exposure lasts 10 seconds. Other average figures might be three assistants exposed to the radiation from each machine and about 30 pairs of shoes examined each working day in each machine. If these figures are used, and multiplied by the estimated number of machines in use in the country, a typical value for the gonad dose to the whole population in a year can be determined.

As a basis for comparison, we may consider the background radiation, which is the radiation everyone receives continuously from cosmic radiation and from the small amounts of natural radioactive material in our surroundings. If the population dose from shoe-fitting fluoroscopes is compared with that received by the population from background radiation it is found that the shoe-fitting fluoroscope dose rate is of the order of only 1/1000 of the natural background dose rate. Therefore the genetic aspect of shoe-fitting fluoroscope doses is negligible, and will still be so even if the various figures assumed above are increased considerably.

Possible Control Measures

Various control measures could be applied to shoe-fitting fluoroscopes; dosage to customers' feet could be limited by specifying a maximum dose rate in the useful beam, perhaps also with limits on the kilovoltage and current of the *x*-ray tube. The specification of some minimum filtration in the useful beam is very desirable, and some form of timing device may be necessary to limit the length of each individual exposure. If viewing could be done by a special shop assistant who kept partly dark-adapted (full dark adaptation is used in diagnostic fluoroscopy), a less bright fluorescent image could be used and the radiation doses would be reduced. To limit the dose to shop assistants, the minimum screening of the *x*-ray equipment and viewing-hood could be specified, or a maximum permissible dosage rate fixed, to be measured against the outside of the equipment. The effect of scattered radiation coming from the foot opening of a machine could be minimized by pointing the foot opening towards a wall and away from the centre of a shop. It may here be noted that the machines tested could be used for a limited number of short exposures before the radiation dose from them reached the limit recommended by the I.C.R.P.

The I.C.R.P. states clearly that the overall responsibility for the protection of personnel from radiation rests with the head of a radiological department; this will be the manager in a shoe-shop. Manufacturers of machines could be asked to make sure that their instructions for the use of their machines describe these responsibilities. In the absence of a manager, responsibility would be delegated to another member of the shop staff who understands the hazards involved and the appropriate control measures. For the customer there could be warning notices, to draw his attention to the dangers of excessive exposure to *x* rays, and perhaps a reminder could be issued to the customer each time the machine is used.

New machines would be expected to conform to the specified requirements on installation, and some form of periodical checking would be desirable to ensure that these requirements continue to be met.

A Ministry of Health committee has already begun work on the drafting of proposals for control measures; these proposals will be submitted to the appropriate committees of the Medical Research Council for criticism; and they will be discussed with interested parties in the shoe trade.

Summary

The shoe-fitting fluoroscope is a familiar object in many shoe-shops. Results of measurements of radiation dose in and around British machines are presented. The hazards to adult and child customers from these doses of radiation are discussed. It is suggested that regulations are needed, in the public interest, to control doses of radiation given by these machines, and possible control measures are suggested. The machines tested could be used for a limited number of short exposures before the radiation doses from them reached the limit recommended by the International Commission on Radiological Protection. A Ministry of Health committee is considering proposals for control measures.

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Southern Europe, from Spain to Bulgaria, according to reports given at a recent W.H.O. conference in Athens on malaria, has achieved remarkable progress in reducing the incidence of the disease. Before the introduction of D.D.T.-spraying at the end of the last world war there were about four million cases of malaria a year in this area. The figure is now estimated to be less than 10,000. Progress was also claimed for the Eastern Mediterranean countries, a reservoir of malaria throughout the ages. In this region of some 170 million people there are said to be 100 million who live in areas where malaria is a threat. As late as 1949 about 40 million people regularly suffered attacks of malaria. Since malaria campaigns have been extended this figure has been reduced to about 14 million. The conference, attended by some 50 eminent malariologists, decided that it would be technically possible to eradicate malaria from the countries that surround the Mediterranean and the wider areas which constitute the European and Eastern Mediterranean regions of the World Health Organization. Dr. PAUL RUSSELL, of the Rockefeller Institute, said the solution of administrative and financial problems was the key to success in malaria education. Resistance to modern insecticides was also discussed, but, despite the hazard, an optimistic view was taken of the possibility of eliminating the disease. Professor GEORGE MACDONALD reported that experiments at the Ross Institute in London had shown that mosquitoes inherit resistance to insecticides according to Mendelian laws.

TECHNIQUE FOR BY-PASS OPERATIONS IN FEMORAL ARTERIAL DISEASE

BY

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The results of resection and end-to-end grafting in the treatment of obstruction of the femoral artery due to obliterative arterial disease have been disappointing, there being a very high incidence of further thrombosis. This has led many surgeons to reconsider the by-pass type of operation recommended by Kunlin *et al.* (1951) and more recently used by F. B. Cockett (1953, personal communication), Crawford and de Bakey (1955), and Linton and Menendez (1955).

So far as the positioning of the patient is concerned, those authors appear to have used the positions designed for complete exposure of the femoral and popliteal vessels. The usual position, with the patient lying on the affected side and the unaffected leg flexed, gives good access to the lower femoral and popliteal arteries but obscures the upper femoral.

Method

A method of operation has been devised which gives good simultaneous access to the common femoral and popliteal arteries by two surgeons operating together in a synchronous combined procedure. The patient lies on the unaffected side, and a small wooden table, designed so that its legs are firmly engaged on the operating table, is placed over the normal leg (this table was designed by J. Crawford Adams for use in hip arthroplasty operations). The table is covered with a "sorbo" rubber pad on which the diseased leg rests (Fig. 1).

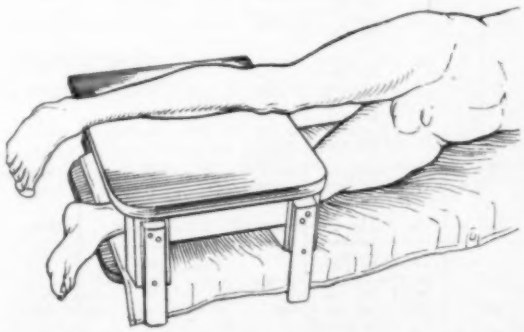

FIG. 1.—The operative position, showing the type of table used to support the diseased leg.

The position is maintained with the normal back rest and chest support used in kidney operations. These are placed fairly high so as to allow slight rotation of the patient should better access to popliteal or groin incision be required. One surgeon sits opposite the popliteal fossa and the other faces the groin. Each assistant sits opposite his surgeon.

The popliteal incision is made first in order that the popliteal artery may be inspected and its suitability for end-to-side anastomosis assessed. Should it be suitable, the second operator makes a small vertical incision exposing the common femoral artery bifurcation, while the first operator continues his popliteal dissection. A tunnel is then made from one incision to the other, this being started with an index finger from each end. In some patients it may be possible to complete the tunnel by digital dissection, but in others a long instrument such as a sponge-holding forceps or Lloyd Davies artery forceps is passed. A plane is found easily from the upper end passing deep to the sartorius medial to the femoral artery. The tunnel may be made to transverse the adductor magnus by enlarging the normal arterial hiatus or a fresh opening may be made. This is the only point where even slight difficulty has been found, and slow, careful exploration with a finger from the lower incision may be needed. The exact anatomical site of the tunnel is difficult to determine throughout its length, but it is probably within the subsartorial canal for most of its distance. This dissection is almost bloodless. A tube is then introduced through the lower incision and guided through the tunnel by the instrument from the upper end. An oesophagoscope has been found to be a useful tube (Fig. 2). It is

FIG. 2.—The passage of an oesophagoscope from popliteal to femoral incision.

essential to ensure that the graft will pass easily through the tube. The purpose of the tube is to allow the graft to be threaded through the tunnel without any possibility of uneven tension or kinking or twisting. The graft has a number of small silk sutures or ink marks placed in a straight line down its length as a further precaution against twisting. The graft or implant is then drawn through the oesophagoscope with long biopsy forceps and the oesophagoscope withdrawn. After carefully assessing the length required, the ends of the graft are trimmed and each operator proceeds to make his end-to-side anastomosis, the lower being to the popliteal artery and the upper to the common or superficial femoral. The method of anastomosis is that used by F. B. Cockett. With this technique a by-pass procedure is a relatively short operation. It may be done by two surgeons, working synchronously, in little over an hour. In single-handed surgery the position is of advantage as it allows good access without turning the patient. Slight adjustment can be made to the position by rotating the leg and patient through a few degrees so as to improve the lighting and access without any change in the towelling.

The by-pass type of operation is of too recent introduction for any opinion to be formed on its merits, but it was thought that this simple technique might be of use to others who are experimenting with by-pass operations.

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NITROFURANTOIN IN CHRONIC URINARY INFECTION ASSOCIATED WITH RENAL CALCULI

BY

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In the recent literature there have been numerous references to the use of nitrofurantoin (N-(5-nitro-2-furfuryl-idene)-1-aminohydantoin; "furadantin") in the treatment of urinary infections. Many reports consist of series of cases of urinary infection, both acute and chronic, associated with varying complicating factors such as urinary stasis, prostatectomy, or urolithiasis, which greatly increase the difficulty in interpreting the results of therapy (Norfleet *et al.*, 1953; Kaplan and Hobgood, 1954; Draper *et al.*, 1954; Hasen and Moore, 1954; Waisbren and Crowley, 1955). In some reports an improvement in the patient's symptoms was claimed as evidence of successful treatment, although the urine was not rendered sterile. The only report of its use in Great Britain appears to be that of Heffernan *et al.* (1955), which gives the results of treatment in 12 cases of infection following prostatectomy or associated with carcinoma of the prostate, in none of which the urine was rendered sterile.

Nitrofurantoin has a wide spectrum of antibacterial activity against both Gram-positive and Gram-negative organisms. *In vitro* it is active against *Staph. pyogenes, Str. pyogenes, Str. faecalis, Str. mitis, C. diphtheriae* and diphtheroids, *A. aerogenes, E. coli*, and many strains of coliform organisms, many strains of *Proteus, Paracolon* species, *Salmonella*, and *Shigella*, and *N. gonorrhoeae*. Although some strains of *Ps. pyocyanea* show *in vitro* sensitivity, most workers have not found it clinically useful against infections with this organism. It has been used with success against infections with most other organisms which show *in vitro* sensitivity.

The results of nitrofurantoin therapy in 21 cases of urinary infection associated with renal calculi, or persisting after the removal of calculi, are reported here. The patients have been followed for a minimum period of three months after the end of treatment. Only those cases in which the urine was rendered sterile are regarded as successful. Sensitivity tests of the infecting organisms were carried out, and were repeated on cessation of therapy in the unsuccessful cases.

Selection of Cases

The patients were chosen arbitrarily from the out-patients attending the Stone Clinic, attached to this department. They all had a chronic urinary infection associated with the presence of a calculus (8 cases) or persisting after the removal of a calculus (13 cases). They had been observed by me to be infected with the same organism for periods varying from 3 to 24 months. In some patients the urine was known to have been infected before they came under my care, but this is not noted in Table I. All the patients had received adequate courses of sulphonamides and sometimes antibiotics without success, and in some cases these had been repeated several times. In the females a catheter specimen of urine, or a mid-stream boiled bottle specimen in the males, was obtained immediately before the treatment was begun. This was repeated on the last day of treatment, or the day following it, and again three months later. Two patients who did not attend at the end of the course of nitrofurantoin have been excluded from the series. Details of the patients are shown in Table I. They were all ambulant and afebrile, and none complained of symptoms that could be directly attributed to the presence of infection.

Dosage

It was decided to give a large dose of nitrofurantoin despite the increased likelihood of toxic effects, because the infections had all proved resistant to treatment with other agents. The patients were weighed and given tablets to correspond to a dosage of 10 mg. per kg. body weight per 24 hours. They were instructed to take the tablets during a meal to prevent nausea, as has been recommended by Trafton *et al.* (1955). If nausea was severe or vomiting occurred the dose was gradually reduced until this was controlled, the treatment being continued at the highest level the patient could tolerate. Fourteen patients succeeded in taking the complete course of 10 mg. per kg. per day for 14 days. Three completed the course at a dose of 7 mg. or more per kg. per day. Two did not persist with

TABLE I

Case No.	Calculus	Duration of Infection (Months)	Organism and Sensitivity	Previous Treatment	Nitrofurantoin Sensitivity	Results of Nitrofurantoin Treatment	
						Immediate	3 Months
1	–	6	Coliform PR, OR, CR, StR	Sul, C	2+	Unchanged	Unchanged
2	–	19	Enterococci PR, OS	Sul, O	2+	Coliform NR	Coliform
3	–	7	Coliform PR, OS	O	4+	Sterile	Sterile
4	+	12	Coliform PR, OR, StR, CS	Sul	2+	Proteus NS 2+	Coliform
5	–	8	Enterococci PR, OS	,,	4+	Sterile	,,
6	–	3	*Staph. pyogenes (aureus)* PR, OS	O, C	8+	,,	Sterile
7	–	5	Proteus PR, OR, StR, CS	O, Sul	2+	Coliform NS 2+ Enterococci	Coliform
8	+	17	Coliform PR, OS	,, ,,	1+	Unchanged	Unchanged
9	+	15	Coliform PR, OS	Sul, O, sulphadimidine	8+	Coliform NS 4+	Coliform
10	+	6	Enterococci PR, OS	O, Sul	8+	Sterile	Sterile
11	–	8	Enterococci PR, OS, CS	C, Sul	2+	,,	Enterococci
12	–	24	Coliform PR, OS	Sul	3+	Proteus NS 3+	Coliform
13	–	6	Coliform PR, OS, StS, CS	O, Sul	•3+	Unchanged	Unchanged
14	–	4	Coliform PR, OS	O, sulphonamides	8+	Sterile	Sterile
15	+	21	Proteus PR, StS, CS, slightly OS	Sul, C, streptomycin	•2+	Unchanged	Unchanged
16	–	3	*Staph. pyogenes (aureus)* PS, OS	Penicillin	8+	Sterile	Sterile
17	–	18	Enterococci PR, OS	O, Sul	8+	,,	,,
18	+	17	Coliform (aerogenes)	Sul	1+	,,	Coliform
19	+	8	Coliform PR, OS	C, sulphadimidine		Unchanged	
20	+	7	Coliform PR, OS	"Sulphatriad"	4+	Sterile	Proteus 2 weeks later
21	–	6	Coliform	,,		Diminished growth	Coliform

• Resistant colonies.

P, penicillin. O, oxytetracycline. St, streptomycin. C, chloramphenicol. Sul, sulphamethizole. R, resistant. S, sensitive. Sensitivity tests were carried out using the standard disk technique. Nitrofurantoin sensitivity: 1+, zone of no growth 2.5–5 mm. around 381 μg. disk, 2+, zone of no growth 2.5–5 mm. around 174 μg. disk; 3+ zone of no growth 2.5–5 mm. around 86 μg. disk; 4+, zone of no growth 2.5–5 mm. around 33 μg. disk; 5+, zone of no growth greater than 5 mm. around 381 μg. disk; 6+, zone of no growth greater than 5 mm. around 174 μg. disk; 7+, zone of no growth greater than 5 mm. around 86 μg. disk; 8+, zone of no growth greater than 5 m.n. around 33 μg. disk.

the treatment after seven days, even at a reduced dose, because of severe vomiting. Two patients had 7 mg. or more per kg. for 9 days and 7 days respectively.

Bacteriology

Each urine specimen was taken in duplicate, and cultures were taken in the hospital laboratory and personally by me in an attempt to exclude the possibility of contaminated urine. In all cases the results were in agreement. No attempt was made to identify separate strains of the different organisms cultured, as this was not intended to be a bacteriological study. The standard disk method was used for determining the sensitivity of the organisms to nitrofurantoin, the disks containing 381, 174, 86, and 33 μg. of nitrofurantoin respectively. An effort was made to make the inoculum as standard as possible, and the cultures were read at 6 hours and again at 18 hours, it being emphasized by Richards *et al.* (1955) that these factors influence the apparent *in vitro* sensitivity to nitrofurantoin.

Results

The results for individual patients are shown in Table I. Ten patients (48%) had sterile urine on the fourteenth or fifteenth day—that is, immediately after the conclusion of treatment. In four patients (19%) the original organism was replaced by another organism. In seven cases (33%) the original organism was still present at the end of treatment. In six patients (28%) the urine was sterile three months after the cessation of treatment. In one patient the original organism had reappeared, and two others had an infection due to a different organism. One patient reappeared with a urinary infection due to a different organism two weeks after the course of treatment. Two patients have been followed for five months. In one the original infection has recurred, although the urine was sterile at three months, but there is a large calculus in one kidney. The other patient's urine has remained sterile for five months, although she repeatedly relapsed after a few days when given courses of sulphonamides.

Bacteriology.—Nitrofurantoin appears to be particularly useful against infections with *Enterococcus, Staph. pyogenes,* and *Proteus,* as can be seen in Table II.

TABLE II

Organism	No. of Times Isolated	No. of Times Eradicated
Coliform	11	3
Coli (aerogenes)	1	1
Enterococci	5	5
Staph. pyogenes (aureus)	2	2
Proteus	2	1

Toxicity.—As might be expected from the relatively large dose of nitrofurantoin, toxic symptoms often occurred. These are shown in Table III. As already stated, only 14

TABLE III

Toxic Symptom	No. of Times
Nausea (slight)	5
" (moderate to severe)	9
Vomiting	4
Headache	3
Flushing	2
Prostration	1
Skin rashes	0

of the 21 patients were able to tolerate the complete course. Seven patients did not notice any abnormality while taking nitrofurantoin. The toxic symptoms were similar to those reported by other workers, except for the occurrence of transient attacks of flushing in two patients. Toxic symptoms occurred more often amongst women. Although almost half the patients were women, none was free from toxic symptoms. The drug was given to one child aged 2½ years without any ill-effect. There were no instances of skin rash in this series, but rash has since occurred with two other patients. In most cases toxic symptoms were controlled by slightly reducing the dosage, but in a few it was not possible to continue the treatment

Discussion

In this study the number of cases was small and a detailed statistical analysis did not seem warranted. It was felt that the patients could form their own controls, since they had been continuously infected with the same organism for prolonged periods, and it was therefore unlikely that the infection would disappear spontaneously. The fact that the urine was sterile in one-third of the patients three months after the end of treatment increases the value of these results.

The cases in which the infecting organism was replaced by another organism have here been regarded as failures, although this has not been the practice of some other workers (Richards *et al.*, 1955). The replacement of a coliform infection by Proteus, for instance, is unlikely to prove beneficial to the patient. However, the occurrence of such cases suggests that the incidence of cure is likely to be higher in cases without the complicating factor of calculus damage.

The sensitivity of the infecting organism to nitrofurantoin, as would be expected, corresponded fairly well with the result of treatment. In all the successful cases except one the organism appeared to be very sensitive to nitrofurantoin; in the remaining case it appeared to be only slightly sensitive. It has also been noted by Mintzer *et al.* (1953) that *in vitro* tests may occasionally fail to correspond to the clinical effectiveness of the drug. In one unsuccessful case the organism appeared to be very sensitive *in vitro,* but there is a large calculus in one kidney.

In one of the unsuccessful cases the sensitivity of the organism appeared to have somewhat decreased after 14 days of treatment, but in the others the sensitivity was unchanged. In two cases resistant colonies were noted in cultures both at the beginning and at the end of treatment, although they did not seem to have increased in number. This suggests that two strains of the same organism of differing sensitivity were present or, alternatively, that there were resistant mutants of the same strain. The presence of such resistant organisms in an otherwise sensitive infection is of potential importance in cases in which it might be desirable to give a prolonged course of treatment.

In this group of patients infection had been present for long periods and had proved refractory to treatment with other drugs. The difficulty of eradicating urinary infection in the presence of a calculus is well recognized. The fact that infection frequently tends to persist, or occur for the first time, after the removal of a calculus is not often mentioned. In this type of patient it is particularly important to cure the infection, in view of the part it may play in increasing the incidence of recurrence of calculi. There is also the added danger of chronic pyelonephritis to the function of an already traumatized kidney. The urine became sterile in 48% of these cases, although only 28% remained sterile three months later. The high relapse rate, and the fact that in some cases the original infection was replaced by another one, does not detract from the therapeutic value of nitrofurantoin. They merely indicate that the damaged renal tract is especially prone to become infected. In cases of refractory urinary infection it would appear that nitrofurantoin is a drug of considerable value.

Summary

Nitrofurantoin was used in the treatment of 21 cases of refractory urinary infection associated with the presence of renal calculi or persisting after the removal of calculi. In 48% of cases the urine became sterile after 14 days. In 28% the urine remained sterile for three months.

The *in vitro* sensitivity of the organism corresponded fairly well with the result of treatment. Resistant colonies were observed in otherwise sensitive infections,

and the presence of such resistant organisms might prove to be of importance if it was desired to give prolonged treatment.

Toxic symptoms were often encountered, but could usually be controlled by slightly reducing the dosage.

This work was carried out during the tenure of a grant from the Medical Research Council. The furadantin was kindly supplied by Duncan, Flockhart and Co., of Edinburgh. I wish to thank the Department of Clinical Pathology of the Royal Victoria Hospital for help in this study, and the Department of Microbiology, Queen's University, for advice and guidance, and for the use of the facilities of the department. I am grateful to Mr. E. Morrison, and the other surgeons of the Royal Victoria Hospital, Belfast, who allowed me access to their patients. I wish to thank Nurses P. Crawford and R. Hand, who collected the urine specimens

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URINARY SYMPATHIN EXCRETION OF NORMAL INFANTS AND OF INFANTS WITH PINK DISEASE

BY

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The condition known variously by the name of "pink disease" and by a number of other descriptive or eponymous titles was described by Feer (1923) as a disorder of the vegetative nervous system. The fact that he employed atropine in treatment, however, suggests that he may have failed to appreciate the full significance of his hypothesis.

A very severe case of pink disease which was admitted to the Royal Edinburgh Hospital for Sick Children in October, 1953, appeared to one of us (J. W. F.) to show so many suggestive features of an overacting sympathetic nervous system that it was thought justifiable to embark on the determination of the infant's urinary sympathin (adrenaline and noradrenaline) excretion. The result was of sufficient interest to stimulate the investigation of further cases and of control subjects.

Method of Investigation

Urine was collected accurately for 24-hour periods from 19 healthy infants, most of whom were resident in nurseries under the care of the local authority, usually because of some temporary dislocation of family life. A number were convalescing from minor illnesses in hospital, and in these cases the collections were obtained over the 24 hours immediately before discharge. Urine was collected similarly from four infants who presented the undoubted clinical features of pink disease.

All the control subjects and three of the affected infants were males in whom accurate urine collection was possible by means of small-sized latex colostomy tubing which was strapped to the penis and allowed to drain into a specially prepared collecting bottle. The fourth patient with pink disease was a female, and great difficulty was experienced in obtaining an accurate collection of urine despite the use of an indwelling catheter.

The urine was collected in bottles containing 5 ml. of 2N H_2SO_4 and 0.5 ml. of chloroform to stabilize the sympathin. Aliquots of the measured 24-hour specimen were used for assay. One aliquot (50–100 ml.) was submitted to acid hydrolysis by heating at *p*H 2 (adjusted with 2N H_2SO_4) for 20 minutes in a boiling-water bath. This treatment releases some (Euler and Hellner, 1951) but not all of the catechol amines excreted in a conjugated form (Euler and Orwén, 1955). The sympathin excreted in the free state was determined, using another aliquot of the urine which was not submitted to acid hydrolysis.

The sympathin determinations on the hydrolysed and unhydrolysed urine were carried out by a method to be described in detail elsewhere by Crawford and Law. It consists essentially in the extraction of the sympathin by passage of the diluted urine at *p*H 7 through a column of a weak cation exchange resin "amberlite IRC-50" previously buffered to *p*H 7–7.5. The adsorbed sympathin is recovered from the column by elution with dilute sulphuric acid. Most of the inorganic salt in the eluate, brought to *p*H 3.5 with dilute sodium hydroxide, is precipitated by the addition of 2–4 volumes of a mixture of equal volumes of acetone and ethanol. The supernatant is evaporated to dryness at 35° C. under reduced pressure. The residue is dissolved in distilled water (3 ml.) to give the "final urine extract." The sympathin content of this solution is determined fluorimetrically, using Lund's (1949, 1950) method modified in such a way that equal quantities of adrenaline or noradrenaline or mixtures of the two amines give similar intensities of fluorescence (Crawford and Law, unpublished).

When individual determinations of adrenaline and noradrenaline in the urine extract were required, separation of the two amines was effected by submitting an aliquot of the final urine extract to paper chromatography (Crawford and Outschoorn, 1951, modified as described by Vogt, 1954). The concentrations of the separated amines in the eluates from the appropriate paper strips were determined fluorimetrically.

The method of extraction of urinary sympathin described by Euler and Hellner (1951) was used in the first case of pink disease investigated (Table III). The sympathin in the urine aliquot is adsorbed on to aluminium hydroxide formed in the urine by the addition of aluminium sulphate followed by adjustment of the *p*H to 7.5 with dilute sodium hydroxide. The separated precipitate is dissolved in dilute sulphuric acid and the inorganic salts are removed by precipitation with acetone-ethanol mixture (see above) after adjusting the *p*H to 3.5. The supernatant is evaporated to dryness under reduced pressure at 35° C. The residue was dissolved in 0.9% (w/v) sodium chloride and the sympathin concentration in terms of noradrenaline determined by bio-assay, using the rat's blood pressure preparation (Crawford and Outschoorn, 1951).

A recovery of 82% (S.D. 6) was obtained by the amberlite IRC-50 method in 51 experiments in which adrenaline or noradrenaline (3–30 μg.) was added to urine. No significant difference ($P=0.05$) in the recoveries of adrenaline or noradrenaline, or in the recoveries from hydrolysed and unhydrolysed urine, was found. Similar control experiments in which the two amines were separately determined following extraction by the amberlite IRC-50 method and separation by paper chromatography showed a recovery of 50%

(S.D. 9) for 2 to 15 μg. of either amine (10 estimations). Again the recoveries for adrenaline and noradrenaline did not differ significantly (P=0.05).

The figures cited in the tables are corrected values, the correction factor for each experimental result being obtained from a recovery experiment carried out concurrently with the analysis.

Excretion of Sympathin in Normal Infants

Determinations of the sympathin excretion in single 24-hour urine samples from each of 14 healthy male infants aged 6–18 months gave a mean value of 16.5 μg. (S.D. 4.0) for hydrolysed urine and 13.2 μg. (S.D. 3.4) for the sympathin excreted in the free state (Table I). The results for hydrolysed urine are similar to those given by Burn *et al.* (1953), who found 12–18 μg. (in terms of noradrenaline) in the 24-hour urine samples of three children aged 3–24 months.

TABLE I.—*Urinary Sympathin Excretion by 14 Normal Male Infants*

No.	Age in Months	Body Weight (Kg.)	Volume of Urine (ml.)	Sympathin (μg./24 hours)		% as Free Sympathin
				Hydrolysed Urine	Unhydrolysed Urine	
1	6	6·5	405	13·9	11·6	84
2	6	7·45	645	23·4	13·4	58
3	6	7·2	370	22·8	14·3	63
4	9	10·3	430	16·3	11·7	72
5	9	10·0	410	15·4	12·7	83
6	10	8·8	360	16·7	15·3	92
7	12	10·4	370	13·3	10·8	81
8	12	10·4	370	14·4	11·0	77
9	12	9·6	152	16·8	16·3	97
10	12	7·25	418	13·1	10·1	77
11	12	7·75	570	18·1	16·3	90
12	13	10·0	305	17·6	14·9	85
13	13	6·4	448	7·6	6·4	84
14	18	10·9	199	21·5	20·4	95
Mean	10·7	8·78	389	16·5	13·2	81
S.D.				4·0	3·4	11·3
Fiducial limits (P=0·05)				14·1–18·9	11·3–15·2	74–88

Separate determinations of the adrenaline and noradrenaline excretion by five normal male infants of 10–12 months showed 69% (S.D. 4.7) of the free sympathin to be noradrenaline, while of the sympathin in hydrolysed urine noradrenaline accounted for 61% (S.D. 5.8) of the total (Table II).

Clinical History and Sympathin Excretion of Infants with Pink Disease

Case 1

The patient, aged 9 months, was the second child of healthy unrelated parents. His original progress was entirely satisfactory, but at 7 months he developed chicken-pox, complicated by a severe attack of bronchitis, which was clearing at 8 months when he developed whooping-cough and further respiratory infection. His symptoms of increasing anorexia and irritability had followed the onset of pertussis. There was no history of exposure to mercury in teething, grey, or worm powders, in ointment, disinfectant, or nappy washes. The development of classical and very severe pink disease was progressive, and the infant became so profoundly anorexic that tube-feeding was necessary. He was extremely miserable, had typical cold and puffy red hands with peeling developing after some weeks; sweating was profuse, and resulted in the typical body rash which the infant rubbed and scratched continuously. He was uncomfortable in any position, had a persistent tachycardia, was hypertensive (140/106), was photophobic, and had marked dilatation of the pupils. He shed his four teeth, and his tongue became small, hard, and blanched, the tip eventually sloughing. The abdomen became progressively distended with gas until it caused him distress.

At this stage rectal examination revealed his bladder to be grossly distended, the wall apparently being thin and relaxed. Micturition was hesitant and dribbling, the difficulty being similar to that sometimes observed after a dose of ephedrine. After an ounce or so of urine had been passed by dribbling micturition, catheterization produced a large residuum. Neither then nor later was any obstruction demonstrated, and it became the practice to assist the infant to empty his bladder completely twice daily by pressure on the abdominal wall and from the rectum.

Investigation of the patient's urinary output of mercury in 24 hours at an early stage failed to reveal anything abnormal and his serum sodium and chloride were normal, although it should be stated that he had been receiving half-strength saline frequently each day as the excessive loss from the skin was obvious.

Much of the clinical picture suggested overactivity of the sympathetic nervous system, and the urinary sympathin excretion was determined. The result was given as 74 μg. of pressor substance (in terms of noradrenaline) in 24 hours (Table III).

TABLE III.—*Urinary Excretion of Sympathin (μg./24 hr.) in All Cases*

Case	Collection	Unhydrolysed Urine	Hydrolysed Urine	% as Free Sympathin
1	1	Not done	74*	
2	1	41	41	100
	2	20	21·5	93
	3	42	49	86
3	1	43	Not done	
	2	40	"	
	3	37	36"	100
4	1	13	17	77
	2	19	23	83

* Extraction by the method of Euler and Hellner (1951). Extracts assayed on rat's blood pressure preparation with (−) noradrenaline as standard.

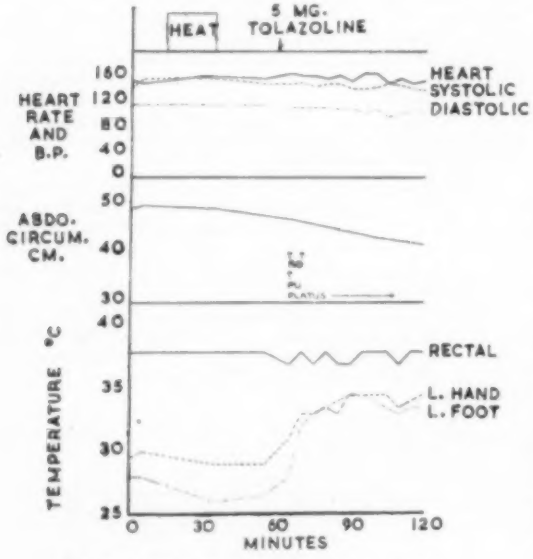
It was decided to observe the effect of reflex heat and of an anti-adrenaline drug on the patient, and the result may be seen on the graph. Skin temperature readings were recorded with a thermistor and the rectal temperature with a

TABLE II.—*Urinary Excretion (μg./24 hr.) of Adrenaline and Noradrenaline by 5 Normal Male Infants*

No.	Age in Months	Body Weight	Volume Urine in 24 Hours	Hydrolysed Urine			Unhydrolysed Urine		
				Adren.	Noradren.	Total	Adren.	Noradren.	Total
1	10	5·45 kg.	475 ml.	8·3 (45%)	10·2 (55%)	18·5	3·9 (37%)	6·7 (63%)	10·6
2	10	5·5 "	540 "	8·8 (46%)	10·3 (54%)	19·1	3·7 (32%)	7·9 (68%)	11·6
3	12	9·1 "	495 "	5·9 (34%)	11·4 (66%)	17·3	2·4 (24%)	7·4 (76%)	9·8
4	12	9·1 "	485 "	5·5 (36%)	9·8 (64%)	15·3	3·0 (30%)	7·1 (70%)	10·1
5	12	9·4 "	670 "	8·2 (35%)	15·2 (65%)	23·4	5·5 (30%)	13·0 (70%)	18·5
Mean	11·2	7·7 "	533 "	7·3 (39%)	11·4 (61%)	18·7	3·7 (31%)	8·4 (69%)	12·1
S.D.				1·52	2·22	2·99	1·17	2·6	3·6
Fiducial limits (P=0·05)				5·4–9·2	8·6–14·1	15·0–22·4	2·25–5·15	5·2–11·6	7·6–16·7
				Mean noradrenaline %=61 S.D., 5·8 Fiducial limits, 53–68			Mean noradrenaline %=69 S.D., 4·7 Fiducial limits, 63·6–75		

premature-baby thermometer. The pulse and blood pressure were also recorded, and as some measure of the effect on the relaxed bowel the abdominal circumference was measured around its maximum point. As may be seen, reflex heat (provided by an electric blanket to the right arm, leg, and half of trunk) failed to produce release of the vasospasm, but within five minutes of injecting tolazoline ("priscol") the skin temperature was rising to normal and remained there, the bowels opened copiously, and urine passed normally. There was only a slight fall in the blood pressure, but it is known that tolazoline may not influence hypertension successfully because of its potentiating effect on cardiac output.

The results were so satisfactory that it was decided to begin treatment with this substance. Initially the oral route was employed, but, possibly owing to delayed gastric empty-



Effect of reflex heat and tolazoline in Case 1.

ing, the signs of pink disease were uninfluenced. Intramuscular injection of 5 mg. every six hours was started, with complete control of the vasospasm. The hands and feet were warm, and sweating became normal. The baby was happier, abdominal distension decreased, and urinary function improved but was impeded by a more or less continuous priapism which seemed to be due to the drug. The tongue became normal in appearance apart from the healing irregular anterior margin.

Treatment was continued for five days, and at that time only the gross wasting, some fullness of the abdomen, and weakness remained. On the fifth day of treatment, however, the temperature rose steeply and widespread signs of bronchitis appeared. Chlortetracycline was given, but the patient rapidly deteriorated, dying in 24 hours.

Post-mortem examination was carried out by Dr. A. R. Macgregor. The main features noted were a purulent bronchitis and a patch of bronchopneumonia. Nothing peculiar to pink disease was noted. Chromaffin tissue was subjected to careful histological examination and no abnormality was found. The genito-urinary tract was normal. Sections of the tongue showed that muscle necrosis formed the floor of the ulcerated margin, granulation tissue was forming, and there was much polymorph and mononuclear infiltration. Beyond the areas of necrosis cellular infiltration was noted for some distance, but the arteries in the healthy parts showed no pathological changes, and in the infiltrated areas nothing was found that could not be explained as secondary to the surrounding inflammation.

Case 2

A boy aged 6 months, the second child of healthy unrelated parents, had been well until six weeks before admission, when he began to lose weight and to be restless, fretful, and sleepless. His appetite deteriorated. For one week he had been very photophobic, and for a few days had been sweating profusely, a rash had appeared on the trunk and limbs, and his hands and feet had become pink and cold. There was no history of exposure to mercury.

On examination he had clearly lost weight and there was obvious photophobia. A sweat rash was present and the hands and feet were typically pink, puffy, and cold. The heart rate at rest was 144 a minute, and the systolic blood pressure 130 mm. Hg. The abdomen was a little full and the bowel was constipated, but the bladder was not enlarged. Blood biochemistry, urinalysis, and lumbar puncture gave normal results. No abnormal urinary excretion of mercury was found.

During the next few days his appetite improved, but the clinical condition was unchanged. One week after admission a 24-hour collection of urine was obtained and the sympathin excretion determined (see Table IV). On the following day

TABLE IV.—*Urinary Excretion of Sympathin (μg./24 hr.) in Case 2*

Collection and Date	Treatment to Urine	Extract from Amberlite IRC-50	Eluates from Paper Chromatograms		
			Adren Fraction	Noradren. Fraction	Total
1 9–10/5/54	Hydrolysed Unhydrolysed	41 41	13·9 11·2	26·8 (66%) 26·2 (70%)	40·7 37·4
2 23–24/5/54	Hydrolysed Unhydrolysed	21·5 20	4·1 3·7	15·4 (79%) 13·6 (81%)	19·5 16·7
3 26–27/5/54	Hydrolysed Unhydrolysed	49 42	Not done		

his temperature rose to 101° F. (38.3° C.) and after 24 hours pus cells appeared in the urine. The infection was cleared with sulphadimidine, but during the next week the signs of pink disease became more pronounced. In the third week of his stay in hospital his response to reflex heating (see Table V) was negative, and a further 24-hour collection for

TABLE V.—*Case 2, Skin Temperatures in Degrees Centigrade*

Date		Cubicle Temperature	Hands		Feet	
			Right	Left	Right	Left
24/5/54	Original ..	20·5	28	27	22	22
	½-hour ..	22	25	22·5	21	21
	Heat					
	1 hour ..	21·5	37	23	21·5	21·5
	1½ hours ..	21·5	34	26	21·5	21·5
26/5/54	Original ..	23	33	26·5	24	24
	½-hour ..	23	29·5	24·5	23	23
	Heat					
	1 hour ..	23	37	24·5	22·5	22
	1½ hours ..	23	35	35	21·5	21
1/6/54	Original ..	20	33	32·5	21·5	22
	½-hour ..	21	33	33	21	21
	Heat					
	1 hour ..	21	37	35	21·5	21
	1½ hours ..	21	35·6	34·5	22	22

Temperatures were recorded at five-minute intervals, but, for reasons of space, only selected time intervals are given here. The temperatures were always stable for 20 minutes before heating began, and the latter was applied for 30 minutes by means of a pre-heated electric blanket.

sympathin determination was obtained. Chlorpromazine treatment was begun at once in dosage of 10 mg. six-hourly by intramuscular injection. After 48 hours his clinical condition appeared to be worse, and although his right hand was warm the other extremities did not respond to reflex heating. Urine excreted over 24 hours was again collected and the sympathin content determined. His temperature, which had been unstable, rose again owing to a coliform urinary infection, which was treated with sulphonamide. It was decided to observe the effect of "hydergine," which is a

mixture of equal parts of dihydroergocornine, dihydroergocrystine, and dihydroergokryptine. This was given by subcutaneous injection in dosage of 0.03 mg. three times a day, but his signs remained uninfluenced. While the question of using hexamethonium was being discussed he began to improve and no treatment was given. He was discharged convalescent, and remained well.

Case 3

A boy aged 11 months, the first child of healthy unrelated parents, had made good progress from birth until the age of 9 months. He then became progressively irritable, miserable, anorexic, photophobic, and sleepless. His mother commented on the redness of his hands and feet, and she had noted him to be "soft and floppy." For one month before the development of symptoms he had been having one mercurial powder each day. When seen by one of us (J. W. F.) his condition was beginning to improve. He weighed 1.5 lb. (680 g.) less than he had done two months previously. He was apyrexial, but the heart rate was 168 a minute at rest. He was hypotonic, photophobic, and miserable; his feet and particularly his hands were pink and cold, and there was slight peeling. The blood pressure was 160/100 at rest. His abdomen was a little distended with gas, and the rectum was filled with small pellet-like scybala. The bladder was not palpable. The lower two central incisor teeth had erupted and were obviously loose. The pupils were not abnormally dilated. Other pathological processes were excluded, and the diagnosis was in no doubt. Urine was collected over three 24-hour periods and analysed for sympathin (Table III).

As the infant was clearly improving no treatment was attempted, and it was possible to discharge him for convalescence at home.

Case 4

The patient, a girl, aged 7 months, was the fifth child of healthy unrelated parents. From the third month she had appeared to be restless, "wriggling as if in pain," and miserable at night. Three weeks before admission she developed photophobia of increasing severity. Her appetite rapidly deteriorated, she lost weight, and she became increasingly irritable.

On admission she was very cross and obviously uncomfortable. She wriggled about in the prone position and on her knees with her head firmly buried in the pillows. When faced with the light she closed her eyes tightly and often attempted to cover them with her hands. There was no obvious eye trouble. The hands and feet were cold and distinctly pink, but showed only minimal peeling. A mild heat rash was visible over the abdomen. The heart rate was 180 a minute at rest, and the systolic blood pressure was 130 mm. Hg. The abdomen was a little full but there was no loading of the bowel, and although the bladder was palpable rectally it was not abnormally distended. Other pathological conditions were excluded and the diagnosis was certain.

Urine collections were attempted, but the sex and the baby's extreme restlessness rendered accuracy impossible. All faecal contamination had to be excluded. An indwelling catheter was inserted, and a plastic apron was so attached to the perineum that urine escaping from around the catheter should have been directed into the collecting-bottle. The volumes of urine were so small in each 24 hours (60–70 ml.) that their completeness must be doubted. The results are given in Table III. This infant improved steadily on oral tolazoline.

Discussion

Many and widely varying hypotheses have been advanced in attempts to explain the cause and clinical features of this strange condition. Among these are encephalitis (Francioni and Vigi, 1928), preceding bacterial infection (Rodda, 1925), viral infection (Cobb, 1933), mercurial hypersensitivity (Warkany and Hubbard, 1948, 1951), arsenical poisoning (Meyer and Weise, 1933), "arseno-plumbism" (Calvin and Taylor, 1935), ergot poisoning (Debré and Nevot, 1939), avitaminosis B (Orton and Bender, 1931; Warthin, 1926), avitaminosis E (Forsyth, 1941), emotional deprivation (Leys, 1950; Leys and Cameron, 1952), allergy (Helmick, 1927; Fanconi and Botsztejn, 1948), adrenocortical hypofunction (Cheek and Hicks, 1950), adrenocortical hyperfunction (Cheek, 1954), and a neurosis of the vegetative nervous system (Feer, 1923; Selter, 1927). Of these the possible part played by mercury has attracted the greatest attention in recent years.

Hamilton (1819), in Edinburgh, wrote a classical description of the clinical features of mercurialism, and attention was drawn to their resemblance to pink disease by Warkany and Hubbard (1948, 1951). Not all the features of mercurialism are present, however, in pink disease, nor are all the features of the latter to be noted in mercurial poisoning. Not all affected babies excrete abnormal amounts of mercury in their urine. Hypersensitivity of some infants to the mercury content of medicaments absorbed from the alimentary tract or from the skin has been postulated, but Holzel and James (1952), in comparing two regions in England, found that the disease appeared to be commoner in the region using less mercurial teething powder. Dimercaprol has not fulfilled its earlier promise in treatment (Southby, 1953), and it has even been reported as having been used successfully in patients who excreted no mercury before, during, or after treatment (Houet, 1952). Doubt concerning the role of mercury in the causation of pink disease has been expressed recently by McCance (1955).

Similarly, the parts played by other toxic materials, by vitamin deficiency, and by emotional deprivation have been called in question, and it is clear that no one of these factors is responsible for all cases of pink disease.

There is no convincing evidence of the presence of an encephalitis, although it must be remembered that the condition is sometimes seen in association with the Guillain-Barré syndrome. Feer (1923) was impressed by the apparent disturbance of autonomic balance, and he described pink disease as a "disorder of the vegetative nervous system." Orton and Bender (1931) reported finding in their cases degeneration of cells in the lateral horn of the cord, which they considered to be the effector cells of the splanchnic sympathetic. Like the other inconstant histological changes in the central nervous system, however, these may have resulted from the prolonged illness rather than have been evidence of the basic disorder. Stolz and Woringer (1926) claimed to have found hyperplasia of chromaffin tissue in pink disease, but this has not been substantiated by others.

Many of the clinical features of our cases, and particularly of the first, provide evidence which is suggestive of overaction of the sympathetic nervous system. Arteriolar spasm and the closure of the precapillary sphincters produce capillary anoxia and are responsible for the production of the cold pink, puffy hands and feet, and they were responsible for the necrosis of the tongue in the first case. Hypertension is a logical sequel. Sympathetic activity may be seen in the tachycardia, the bowel and bladder relaxation, and the pupillary dilatation which may be observed. Objection has been raised, however, to the condition being a pure sympathetic overaction in view of the excessive sweating which is such a feature of pink disease. Although cholinergic, it is nevertheless a sympathetic function, and could be explained on the basis of the disturbance being a diencephalic one with resultant stimulation of both the adrenergic and the cholinergic sympathetic nerve endings. It had been hoped that further information on this point might have been obtained by treating the second case with chlorpromazine, but this controversial drug shed no light on the matter.

Alternatively it is possible that the excessive sweating may be a compensatory mechanism for losing heat, in view of the impaired heat regulation resulting from arteriolar spasm. Undoubtedly the heavy sweating is responsible for the prickly-heat rash which so many infants show, and for the reduced plasma chlorides, especially in less temperate

climates than our own. It is more difficult to explain the excessive salivation and the hypotonicity, although the latter may be the result simply of anorexia, poor calorie intake, and sleeplessness, while these in turn may be due to itching, discomfort, and even pain. Excessive salivation may result from sensory stimulation of the mouth, and in Case 1 this may have arisen from the necrotic changes in the tongue. No explanation for the photophobia presents itself, although spasm of the retinal vessels was suspected in our first case. The arteriolar spasm responsible for the pinkness and coldness of the hands and feet is variable. It is common to discover the hands more severely affected than the feet at one examination, only to find the position reversed in the same child a little later. Furthermore, spontaneous relief of spasm in the hands may take place when the feet are still involved, or vice versa, and while the blood pressure is still raised and the heart rate rapid.

These observations would be compatible with a centrally determined variation in sympathetic stimulation in various efferent nerves, or changing sensitivity of end organs to a circulating sympathomimetic substance. Leys (1950) considered that the signs could be explained only on the basis of a disturbance of the whole autonomic system at the diencephalon, and suggested that the condition was a "diencephalopathy." McCance (1955) was of the opinion that pink disease is essentially a manifestation of gross overactivity of the sympathetic system.

Vulliamy (1952) demonstrated very clearly that the arteriolar spasm existing in pink disease was too intense to allow of release by reflex heat, whereas the injection of an adrenergic blocking agent, tolazoline, resulted in almost immediate vasodilatation. Relief of symptoms in six of seven cases treated with tolazoline was noted by Peterson and Laughmiller (1954). It is possible that this is the result of the histamine-like action of tolazoline, and not of its anti-adrenaline activity; but Bower (1954), who reported failure or delay in the response of infants with pink disease to reflex heating, confirmed the release of arteriolar spasm by such ganglion-blocking agents as hexamethonium bromide and pentolinium tartrate. All of these drugs are capable of abolishing most of the signs of pink disease, with the exception of photophobia. These observations on the results of treatment provide suggestive evidence of a possible part played by sympathetic overaction.

Attempts to prove such overactivity, however, by demonstrating the presence of abnormal amounts of sympathomimetic substance in the plasma have met with variable success. Glanzmann (1937) suggested that the adrenal medulla produced an increased secretion of adrenaline in children with pink disease. He found that plasma from affected cases when diluted with Ringer's solution resulted in dilatation of the pupil of the enucleated frog eye, whereas similar dilutions of plasma from normal children had none. This mydriatic effect he attributed to adrenaline. Cheek (1951) investigated the adrenaline content of the plasma in affected and control cases, and found no significant difference, but scrutiny of his results has led to doubt about their value.

The urinary excretion of sympathin is probably a more reliable index of the daily output of adrenaline and noradrenaline than efforts to detect them in the plasma. Burn *et al.* (1953), in a preliminary report, recorded normal urinary sympathin excretion in two cases of pink disease. The present investigation was undertaken shortly after the publication of their letter and before it had come to our notice. The result in the first case indicated that sympathin excretion might in fact be increased in pink disease and stimulated further studies, and the determination of the normal range became necessary (Tables I and II). The results obtained in Cases 1 and 3, and with one exception the results obtained in Case 2, demonstrate that urinary sympathin excretion in these infants was greater than in the normal control group (Table III). The results in Case 4 were apparently within normal limits, but there was some doubt about the completeness of the urine collection. The results of separate determinations of adrenaline and noradrenaline in two of the urine samples from Case 2 (Table IV) indicate that there was no marked change from the normal in the proportions of adrenaline and noradrenaline in the urinary sympathin.

The variability of the physical signs in individual cases suggests that if they are the result of sympathetic overactivity the intensity of sympathetic stimulation varies from time to time along the various efferent nerves of the sympathetic outflow. Should such clinical features be the result of stimulation at the sympathetic nerve endings rather than the response to a circulating sympathomimetic substance, then more intensive signs would be expected to follow the production of a very much smaller total quantity of pressor substances. This would explain why the urinary output of sympathin in pink disease is less than in phaeochromocytoma, although the clinical pictures may resemble each other so closely as to be mistaken for one another (Hubble, 1951; Vulliamy, 1952).

The sympathetic nervous system is known to be responsible for the maintenance of the *milieu intérieur*. Stress results in its increased activity, and many different physical or emotional insults could produce its overaction. At an age when the immature central nervous system may react to the stress of febrile or other incidents in certain children by convulsive seizures it seems at least plausible that the posterior hypothalamus may react to certain insults in certain predisposed subjects by prolonged and exaggerated activity on the part of the sympathetic system. Pink disease has been recorded in the course of Schüller–Christian disease, and was attributed to granulomatous irritation of the posterior hypothalamus (Stahlie and Winkel, 1950).

The physical signs of the condition, its resemblance to the effects of a phaeochromocytoma, and its response to ganglionic and adrenergic blocking agents are suggestive of such a mechanism.

The present investigation has shown that in infants suffering from pink disease the urinary excretion of sympathin may be greater than in normal control infants who were subjected to similar restraint during the period of urine collection. While these results indicate that sympathetic overaction can be present in children with pink disease, they do not provide evidence that this is invariably so. Definitive treatment of pink disease will require to be the treatment of the underlying case, whether that be toxic, infective, or emotional, but ganglionic and adrenergic blocking agents may be used to relieve symptoms by decreasing sympathetic tone.

Summary

The physical signs of pink disease and their response to adrenolytic substances suggest that they may be produced by an overacting sympathetic system.

Such babies may have a higher daily excretion of sympathin than controls of the same age.

Pink disease may represent the misdirected zeal of an inexperienced defence mechanism to a number of obnoxious stimuli in certain predisposed infants.

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HYPERTHYROIDISM DEVELOPING DURING P.A.S. THERAPY

BY

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Since the bacteriostatic effect of P.A.S. on tubercle bacilli in man was described by Lehmann (1946), its relative clinical value and toxicity have been amply confirmed. Among its many toxic effects one must include its effect on the thyroid gland. Medical reports on this subject are few. Madigan *et al.* (1950) were the first to mention an increase in skin temperature in patients who were receiving P.A.S. therapy, although the rectal temperature remained normal. They attributed the finding to the direct pharmacological effect of P.A.S. resulting in peripheral vasodilatation—an effect seen in febrile as well as afebrile patients. The increased heat loss in afebrile patients was compensated by an increase in the basal metabolic rate.

Komrower (1951) drew attention to the fact that P.A.S. was responsible for the thyroid enlargement in his patient, who developed clinical myxoedema during P.A.S. therapy over a period of about six months. Clausen and Kjerulf-Jensen (1951) reported somewhat similar findings in three cases, and four more cases were reported by Bergqvist and de Maré (1952). Further reports came from Librach (1952) and Davies and Galbraith (1953).

A series of 11 cases of thyroid enlargement during P.A.S. therapy was reported by Brinkman and Coates (1954) from the Trudeau Sanatorium, Trudeau, New York. Two of their cases developed myxoedema as well as thyroid enlargement. The enlargement appeared after 4 to 12 months' treatment with P.A.S., except in one case in which goitre appeared after seven weeks' treatment. In addition, Hamilton (1953) recorded an unusual finding of exophthalmos with a hyperplastic-hypothyroid type of enlargement.

The gradually increasing number of reports of the thyroid gland being affected during P.A.S. therapy are all on the hypothyroid type. The following case presents the opposite picture—that is, hyperthyroidism, hitherto not mentioned, apart from the high basal metabolic rate alluded to by Madigan *et al.* (1950).

Case Report

A Thai married woman aged 32 attended the out-patient department for treatment of pulmonary tuberculosis in November, 1953. She had been treated by her doctor for the previous two years with apparently little improvement. Physical examination at that time proved the lesion to be in the left upper lobe, confirmed by *x*-ray examination. Sputum examinations were positive for tubercle bacilli. Her temperature was 37.7° C. (99.8° F.), pulse 118, respirations 24, and body weight 47.1 kg. (7 st. 5½ lb.). She was given P.A.S. (12 g. daily) and isoniazid ("rimifon") (300 mg. daily). After a pneumoperitoneum a few days later her condition improved steadily, and by December, 1954, her weight was 53.3 kg. (8 st. 5½ lb.), pulse 88, respirations 20, temperature 36.7° C. (98° F.), and sputum examinations were negative. However, she began to notice that her neck was somewhat enlarged, and by January, 1955, it was so obvious that she had to wear a scarf to conceal it. She felt easily tired, irritable, and hot even in relatively cool weather. Her weight dropped to 51.6 kg. (8 st. 1½ lb.) in spite of a voracious appetite.

The B.M.R. was +25.1%; cholesterol, 140.2 mg. per 100 ml.; neck measurement, 33 cm.; respirations 20; temperature 36.5° C. (97.7° F.); pulse 104. When the cause of the thyroid enlargement was realized P.A.S. was discontinued and streptomycin was given together with isoniazid. Subsequent to the withdrawal of P.A.S. the hyperthyroid state improved steadily—B.M.R. was +16.8%; cholesterol, 200 mg. per 100 ml.; neck measurement, 31 cm.—with no symptoms referable to hyperthyroidism. By November, 1955, the B.M.R. was +13.3% and the neck measurement 31 cm. (apparently her normal size).

Discussion

The clinical pattern and laboratory findings in this case leave us with no alternative but to conclude that P.A.S. caused thyroid enlargement and hyperthyroidism. It may be argued that the basal metabolism may be high even in afebrile cases, as previously noted by Madigan *et al.* in patients during P.A.S. therapy, but the fact that the B.M.R. changes in our case were correlated with blood cholesterol levels during and after cessation of the drug would be strongly in favour of hyperplastic hyperthyroidism. However, determinations of radioactive iodine uptake and of protein-bound iodine in the serum, especially the latter, could settle the problem, but unfortunately these were not available to us.

Isoniazid by itself is known to cause thyroid enlargement, but this was not the responsible factor in our case, as the drug had been given throughout the treatment period. Angel *et al.* (1955) discussed the role of P.A.S. in the production of thyroid enlargement with or without myxoedema. They investigated the iodine metabolism of the surviving thyroid slices, and were of the opinion that P.A.S. does not inhibit the accumulation of inorganic ^{131}I in thyroid tissue, but is rather like thiouracil and somewhat weaker in action. P.A.S. inhibits the formation of di-iodotyrosine and thyroid hormone, and the action is a direct one, although the possibility of an additional indirect action cannot be entirely excluded. Macgregor and Somner (1954) and Brinkman and Coates (1954) found iodine ineffective in the relief of goitre due to P.A.S., but remissions of the symptoms and goitre were seen following the use of thyroid. Balint *et al.* (1954) reported some benefit from iodine.

The mechanism, outlined above, of the role of P.A.S. in the production of goitre does not seem to fit in with what happened in our case, undoubtedly a case of hyperthyroidism. It may be possible that in this case the P.A.S. in some way, (?) acting like thiocyanate, blocked the formation of thyroid hormone by excessive production of thyrotropin

leading to thyroid hyperplasia; instead of the gland behaving as in hypothyroidism, the patient's diet intake may have contained enough iodine to overcome the blockage by sudden excessive formation and release of thyroid hormone (Paschkis *et al.*, 1941). Alternatively, all the cases so far reported might have had a transient period of hyperthyroidism followed later by hypothyroidism, which might have happened in our case had we continued with the drug for a longer period.

Summary

A case of P.A.S.-induced hyperthyroidism is reported. An attempt is made to explain the mechanism. The literature on hypothyroidism and thyroid enlargement caused by P.A.S. is briefly reviewed.

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GONADAL AGENESIS WITH TETANY AND SEVERE OSTEOPOROSIS

BY

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In 1938 Turner described a syndrome occurring in a group of 10 women, all of whom exhibited sexual infantilism, short stature, cubitus valgus, and webbing of the neck. Varney *et al.* (1942), reporting further cases, noted an increased excretion of urinary gonadotrophins. Albright *et al.* (1942) stressed the fact that the syndrome was associated with ovarian insufficiency, and that this was due to primary agenesis and was not secondary to pituitary hypofunction. In these and subsequent reports many further congenital abnormalities have been noted with varying frequency, and osteoporosis of a degree and distribution similar to that sometimes found in senile patients has often been observed. Much less commonly a similar syndrome has been described in men, and other cases have been seen in which one or more of the developmental abnormalities have been lacking.

One abnormality that has been found not infrequently in these patients is coarctation of the aorta. As this lesion occurs much more commonly in males, it seemed noteworthy to Polani *et al.* (1954) that it should be so often present in a group of people most of whom were women. They considered the possibility that their patients, though possessing genitalia of infantile female appearance, might in fact be genetic males. Animal experiments have shown that if the gonads are destroyed before sexual differentiation has occurred, the subjects will develop feminine genital tracts regardless of the true genetic sex (Jost, 1947). Polani and his group, using a method for sexing a subject by examination of the skin nuclei (Hunter *et al.*, 1954), found that three apparently female patients with Turner's syndrome and coarctation of the aorta were in fact genetic males.

If, as seems likely from these findings, most patients with Turner's syndrome are males, it is not surprising that efforts to treat their "ovarian" agenesis by substitution therapy with female sex hormones have failed to be very satisfactory. It also now seems preferable to use the term "gonadal agenesis" to describe the condition.

In the following case the patient suffered from gonadal agenesis and spontaneous tetany of unknown immediate cause. In addition, marked generalized osteoporosis was noted radiologically. This combination does not seem to have been noted previously, and so seems to merit description even though no good cause for the association can be suggested.

Case Report

A domestic servant aged 25 was referred to Dr. C. E. Dent at University College Hospital by Dr. B. Miles, of Hereford, for investigation of her tetany. She had never menstruated, but, apart from this, had felt normal until 1953, when she began to suffer from episodes of painful cramps and stiffness of the hands and feet, infrequent at first but gradually becoming more common and more severe. By the beginning of 1955 severe attacks were occurring every two to three weeks. She had been well otherwise, apart from a respiratory tract infection two months before admission. Complete dental clearance, apparently for caries, had been carried out early in 1953. She said that she was the backward member of her family. Her parents were not related, and they and five siblings were well and of normal stature.

On examination she was a co-operative but rather simple patient (I.Q. 75), who looked older than her years. No abnormality was noted in the cardiovascular, respiratory, or alimentary systems. Her height was 60 in. (152 cm.) and her span 61 in. (155 cm.). There was no webbing of the neck, but the carrying angle was increased and slight ptosis was present. The axillary hair was sparse, but there was a growth of fine downy hair on the trunk and limbs. The nipples were infantile and there was complete absence of breast tissue. Although she did not exhibit tetany spontaneously while in hospital, Chvostek's and Trousseau's signs were always positive. She showed no tendency to overbreathe.

Mr. G. R. Clare, who examined the patient under anaesthesia, reported: "The labia majora were firm and of normal shape. On the medial surface the labia minora were represented by two small skin tags which were about 2 cm. long. The clitoris was anatomically normal but smaller than usual. The vestibule, remnants of hymen, and vagina were normal in size, but the vaginal skin looked less well oestrogenized than usual for a woman of this age. The cervix and body of the uterus were infantile, measuring 2.5 cm. from external os to fundus uteri. The ovarian ligaments were palpable on both sides. The distal part of these appeared thicker. No separate gonad was palpable. The whole appearance of the genital organs was one of marked hypoplasia except for the vagina, which was of normal size."

Investigations.—Plasma electrolytes: sodium, 146 mEq/l.; potassium, 4.55 mEq/l.; chloride, 102.5 mEq/l.; bicarbonate, 25.4 mEq/l.; calcium, 8.4–9 mg./100 ml.; inorganic phosphorus 4–5 mg./100 ml.; magnesium, 2 mg./100 ml. Alkaline phosphatase, 10.2 King-Armstrong units; blood *p*H determined by Dr. Wynn, St. Mary's Hospital, 7.45; blood urea, 21 mg./100 ml. Electrophoresis of the plasma proteins was normal apart from a slight increase of alpha-globulin. Electrocardiogram: prolonged QTc (0.45 second) and T wave inversion in leads II and III and V_{1-6}. The patient absorbed 95% of her dietary fat in a five-day period. The 24-hour urinary output of 17-ketosteroids,

17-ketogenic steroids, and 17-hydroxysteroids (determined by Dr. J. D. Nabarro) was within normal limits. The 24-hour urinary output of gonadotrophins was between 20 and 80 mouse units. Reports on vaginal smear (Dr. G. I. M. Swyer): "Mainly mucus and debris. The few cells are of basal type—that is, very hypo-oestrogenic."

Bone *x*-ray films showed delayed epiphysial fusion. There was marked diffuse osteoporosis affecting both central and peripheral bones. This was most gross in the pelvic bones, spine, and long bones of the limbs, but the skull and small bones of the hands and feet also showed definite though less marked changes. There was no specific evidence of osteomalacia or hyperparathyroidism—that is, no signs of cyst formation or subperiosteal erosion and no Looser's zones. Report on biopsy from cortex of tibia (Dr. H. Sissons): "Osteoporosis. The cortex is thinned but is otherwise normal. No evidence of osteomalacia is present, and the histological appearance of the intracellular matrix of the bone is normal."

The patient's genetic sex was determined by Dr. Swyer by examination of the skin nuclei and those of the polymorphonuclear leucocytes, and proved to be male.

Course and Treatment.—In an attempt to exclude an endocrine deficiency as the cause of the tetany, methyltestosterone, 20 mg. daily for two periods of six days, and stilboestrol, 2 mg. daily for two periods of six days, were given. The calcium and phosphorus levels rose and fell slightly during this time, but the changes did not seem to be related to the treatment. The simultaneous calcium balance study also showed no significant changes, but was unfortunately very inaccurate owing to curious fluctuations in bowel function. Neither form of therapy nor the raising of the plasma calcium level to 9.7 mg./100 ml. with intravenous calcium gluconate succeeded in abolishing the Chvostek or Trousseau sign.

Discussion

There can be little doubt that this patient has gonadal agenesis in association with some of the other congenital defects of Turner's syndrome. Although such patients not infrequently have osteoporosis limited to the spine, generalized and marked osteoporosis such as this has not been mentioned, nor has the tetany. In the few cases in which serum calcium levels have been recorded they have been normal or slightly raised, as found by Albright *et al.* (1942).

The cause of this patient's tetany remains obscure. Although the serum calcium level was somewhat low, it was hardly low enough to produce tetany without the operation of some additional factor. Also the tetany persisted even when the calcium level was raised almost to normal. None of the other known causes of tetany was apparent in this case.

Although it seems reasonable to suppose that the coexistence of the rare condition of gonadal agenesis with the equally rare conditions of marked clinical tetany and generalized osteoporosis could hardly be a chance occurrence, no cause for the association could be shown.

Summary

A case of gonadal agenesis is described in which, in addition to many of the usual features, spontaneous tetany and generalized osteoporosis also occurred. No metabolic explanation for this association can be offered.

I am grateful to Dr. C. E. Dent, in whose department the balance studies were performed, for permission to publish this case and for assistance with the preparation of this paper.

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HAEMOLYTIC ANAEMIA IN SICKLE-CELL TRAIT

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It is generally accepted that cases of sickle-cell trait show no haematological abnormality other than sickling (Chernoff, 1955). Edington and Lehmann (1955), however, suggested that the trait itself may be "by no means harmless," and ascribed the cause of death in an African woman with the sickle-cell trait to a haemolytic crisis possibly precipitated by a superadded infection. Griffiths (1955) has referred to a sickle-cell crisis occurring in a case of sickle-cell trait during pregnancy. No details were given.

We give below an account of a patient with the sickle-cell trait in whom a haemolytic episode developed during a superadded infection.

Case Report

The patient, a 35-year-old Jamaican, was admitted to Whittington Hospital on February 17, 1955, complaining of general malaise and cough. Three days before admission he felt cold and hot in turn and had vague body pains. On the day before admission he had difficulty in breathing and developed a pain in the right side of his chest, with a cough which produced a small amount of white phlegm.

His previous history was difficult to obtain; all that could be elicited was that he had landed in England from Jamaica five months previously, that he had suffered from unspecified "fever" in his home country, and that he had been working with a fellow Jamaican who had a cough which produced a bloodstained sputum for which he was being treated as an out-patient at another hospital.

Physical examination showed the patient to be a well-nourished negro with a temperature of 105° F. (40.6° C.), pulse 100, and respiration rate 24. Examination of the chest suggested consolidation at the bases of both lungs, with scattered rales and crepitations over the lung areas. Abdominal examination revealed a barely palpable spleen. Examination of the other systems was negative.

Special Investigations.—The initial blood count was: Hb, 60% (8.9 g.); red cells, 3,110,000 per c.mm.; P.C.V., 28%; M.C.V., 93 cubic microns; M.C.H.C., 32%; reticulocytes, 4%; white cells, 3,100 per c.mm. (Standard techniques as in Wintrobe, 1951.) Examination of the blood film showed marked anisocytosis and increased polychromasia of the red cells. Some target cells, "raspberry"-shaped and spiculated forms, together with one normoblast, were seen. A sickling test with 2% sodium bisulphite was positive in 10 minutes. The E.S.R. (Westergren) was 9 mm. in one hour. The serum bilirubin was 1.4 mg. per 100 ml. and the urine contained a great excess of urobilinogen. The direct Coombs test, cold agglutinin test, and specific haemolysin tests were negative. Complement-fixation tests with the antigens of influenza A and B, psittacosis, and Q fever were persistently negative, and the M.G. streptococcus titre was negative at 1 in 4. The Wassermann reaction and Kahn test were negative. Paper electrophoresis of a haemoglobin solution (barbitone buffer *p*H 8.6, 0.06 M solution) revealed a pattern of haemoglobin A plus haemoglobin S, the latter pigment comprising one-quarter to one-third of the total haemoglobin mass. Foetal haemoglobin tested for by the alkali denaturation technique (Singer *et al.*, 1951) was 0.12% (within normal limits). No other abnormal haemoglobins could be demonstrated. Sternal marrow showed slight hypoplasia with active normoblastic erythropoiesis. The myeloid series and

megakaryocytes were normal and there was a small increase in plasma and reticulum cells. No abnormal cells were seen. Culture of sputum yielded a growth of *Staph. aureus* sensitive to penicillin, chlortetracycline, chloramphenicol, and streptomycin. Blood culture yielded a coagulase-negative staphylococcus. Acid-fast bacilli were not detected in sputum, gastric washings, laryngeal swabs, or faeces. C.S.F. was normal and the Widal reaction was negative.

Despite treatment with "estomycin" there was no improvement in the clinical condition, but within 48 hours of starting chloramphenicol the patient felt better and his temperature returned to normal. The temperature stayed normal for only 48 hours on chloramphenicol alone and estomycin was restarted and chloramphenicol stopped. Two pints (1,140 ml.) of blood was transfused on February 26 as the haemoglobin had fallen to 52% (7.7 g.). The serum bilirubin indirect reaction was 1 mg. per 100 ml. on February 19 and increased amounts of urobilinogen continued to be excreted in the urine for a period of three weeks. The temperature continued to swing wildly, and on February 27 signs of an effusion developed over the right lower lobe. Paracentesis was performed and the fluid showed small numbers of leucocytes—almost all lymphocytes—with large numbers of red cells. No bacteria were seen in the films stained by the Ziehl–Neelsen method. Routine and Löwenstein–Jensen cultures were sterile. The patient's general condition improved slightly, but the chest signs remained unchanged. On March 16 signs of bilateral iridocyclitis developed.

Further Investigations.—*X*-ray examination of the chest on March 29 showed fine diffuse miliary foci throughout both lungs, and the appearances were reported as being suggestive of acute miliary tuberculosis. The E.S.R. was 30 mm. in one hour and the Mantoux test was positive at 1 in 1,000. On April 1 the total serum proteins were 6.4 g. per 100 ml. with an albumin:globulin ratio of 0.7:1. Paper electrophoresis of the serum proteins showed a marked increase in globulin. The serum calcium was 11 g./100 ml. and Sulkowitch's test on the urine showed moderate amounts of calcium. Liver biopsy was carried out on April 7, and this was reported on by Dr. C. C. Bryson as showing slight focal chronic inflammatory reaction, fine pericellular fibrosis, and one minute "miliary" epithelioid focus.

On cortisone, isoniazid, and streptomycin the patient's lung condition had practically cleared after one month, but the iridocyclitis was still active. The E.S.R. was now 6 mm. in one hour. The mean corpuscular fragility test (Parpart *et al.*, 1947), which was carried out on May 2 (65 days after transfusion), was 0.375% NaCl equivalent (normal range 0.400 to 0.438% NaCl). On June 13 the peripheral blood picture was as follows: Hb, 100% (14.8 g.); white cells, 6,700 per c.mm. (neutrophil polymorphs 82%, eosinophil polymorphs 1%, lymphocytes 15%, monocytes 2%); platelets, 213,000 per c.mm.; film: normal. No haematological abnormality other than sickling could now be detected.

Discussion

In thalassaemia minor, infection, sometimes of an obscure nature, has been reported to be associated with decreased activity of the bone marrow and a drop in the haemoglobin level steeper than usual, while during periods of freedom from infection the drop in haemoglobin level is more gradual (Matoth *et al.*, 1955).

Weiss (1953) concluded that the sickle-cell trait was associated with a significantly increased incidence of the acute exudative form of pulmonary tuberculosis in American negroes, and stated that "the sickle-cell trait, ordinarily of no particular importance, may assume clinical significance in relation to other disease states." However, Vandepitte *et al.* (1953) could not confirm this association in Africans in the Belgian Congo.

Edington and Lehmann (1955) question the accepted view that the sickle-cell trait is a benign congenital anomaly and refer to the finding of haematuria due to pathological lesions in the kidneys in such cases. In their case of sickle-cell trait death was due to haemolytic crisis and septicaemia associated with the expulsion of a hydatidiform mole in a 23-year-old woman. Post-mortem histology revealed the characteristic findings of a sickle-cell crisis. They considered that "the terminal crisis was probably initiated by the septicaemic condition and was directly responsible for death."

In the case referred to by Griffiths (1955) a sickle-cell crisis occurred in a case of sickle-cell trait during pregnancy. In a personal communication Griffiths confirms that "gross intravascular haemolysis" was present and that other possible causes of haemolysis were not demonstrable.

In our case a haemolytic anaemia developed in a patient with sickle-cell trait during an infection. This anaemia was probably precipitated by the intercurrent disease—sarcoidosis or (atypical) tuberculosis. It is significant, however, that changes in red-cell morphology in the first blood film suggested the need for a sickling test. It is appreciated that both sarcoidosis and miliary tuberculosis *per se* can (rarely) be associated with a haemolytic anaemia. Nevertheless in view of the findings of Edington and Lehmann (1955) and Griffiths (1955) it seems reasonable to suggest that the red cells in cases of sickle-cell trait may be more susceptible to haemolytic mechanisms during intercurrent infections or pregnancy. If this assumption is correct other similar cases should soon be reported.

It is, of course, possible that this man was a heterozygote for the thalassaemia gene and that he was symptomless until under increased stress sickle-cell thalassaemia disease became manifest. We consider this possibility as virtually excluded—though of course only a family study could give a decisive answer—for the following reasons: foetal haemoglobin was absent, the adult haemoglobin was present in a considerably greater proportion than the sickle-cell haemoglobin, and the fragility was only slightly decreased, being of the same order as seen by us in two other cases of sickle-cell trait. There are few references to accurate osmotic fragility tests in cases of sickle-cell trait. Chernoff (1955) states that the osmotic fragility is normal in sickle-cell trait and "somewhat decreased" in sickle-cell anaemia. We have since found a low normal fragility (0.400%) and a decreased fragility (0.382% NaCl) respectively in two further cases of asymptomatic sickle-cell trait. These cases had no anaemia and were discovered only on routine sickling tests. Electrophoretic and foetal haemoglobin studies showed them to be apparently simple S-trait cases. It appears that more observations on the osmotic fragility test in sickle-cell trait cases should be made. In any case, it would appear that we can no longer accept the view that the sickle-cell trait is a harmless anomaly unassociated with anaemia or morphological changes in the red blood cells under all conditions.

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The National Association for Mental Health has established a public information committee under the chairmanship of LORD FEVERSHAM. Its objects are to acquaint the public with the possibility of preventive measures against mental illness, the need for education in principles of mental hygiene, and "the great need to stimulate and support programmes of research in the mental health field." The committee includes psychiatrists, educationalists, and others.

Medical Memoranda

Perforating Wound of the Portal Vein

Injuries to the portal vein following abdominal trauma are rare. Santos and Carichio (1950) discovered reports of 20 such cases, and in three of these the portal vein had been injured by a gunshot wound of the abdomen (Hallopeau, 1910; Romanis, 1916, 1916–17; Giorgi, 1920, 1921). In a personal communication Sir Gordon Gordon-Taylor also recalls a case of portal vein injury during the 1914–18 war. A case of perforating injury of the portal vein following an abdominal wound by an industrial gun is reported because of its rarity and the unusual missile.

CASE REPORT

A man of 38 was admitted to hospital one hour after accidentally shooting himself in the upper abdomen with a cartridge-fired nail-gun, which is used in the housing industry and is able to drive a 1¾-in. (4.4-cm.) nail through a railway sleeper. In this instance the nail passed through the upper abdomen and loin and then pierced both the ceiling and the roof of the house in which the accident took place. He became shocked within a few minutes of the accident and developed pain in both shoulders while being conveyed to hospital.

On examination he showed classical signs of gross internal haemorrhage and shock. His blood pressure was 55/30. In the middle of the epigastrium was a ½-in. (1.3-cm.) charred puncture wound, and a small ¼-in. (0.6-cm.) exit wound was found in the loin just to the right of the first lumbar vertebra. Upper abdominal tenderness and guarding, with a positive release sign, was present. Bowel sounds were heard and rectal examination was negative.

Immediate resuscitation with dextran and blood was begun, and antitetanic and anti-gas-gangrene serum, along with penicillin and streptomycin, were given.

Chest *x*-ray films were normal and *x*-ray examination of the abdomen showed no free gas under the diaphragm, no foreign body, and no bony damage to the lumbar spine. A provisional diagnosis of intraperitoneal haemorrhage due to liver injury was made. After transfusion with 3 pints (1,700 ml.) of blood, the patient's condition had improved sufficiently for him to undergo operation.

Operation under general anaesthesia was begun three hours after wounding. The exit wound of the back was excised and sutured. The patient was then turned over and the abdomen was opened by an upper midline incision and the puncture wound excised. A large quantity of dark fluid blood was immediately encountered in the peritoneal cavity and 3 pints (1,700 ml.) was aspirated. There was a small ¼-in. (0.6-cm.) puncture wound of Riedl's lobe and a substantial right-sided retroperitoneal haematoma around a small penetrating wound on the upper aspect of the neck of the pancreas. On opening the lesser sac no blood was found. Reflection of the upper border of the neck of the pancreas to expose the source of the retroperitoneal haematoma produced brisk venous haemorrhage, which was controlled by digital pressure. Mobilization of the duodenum and pancreas was carried out to expose the portal, splenic, and superior mesenteric veins. Two oblique lacerated wounds some 7–8 mm. in size were found on the anterior and posterior surfaces of the portal vein at the point of junction of the three great veins. After exposure of the site of injury haemorrhage could be controlled only by digital compression, and the assistance of a second surgeon became necessary. Linen tapes and bulldog clips could then be applied to the three major vessels with satisfactory control of the haemorrhage. The perforations were closed with an atraumatic, continuous, everting fine silk arterial suture. The suture lines were "watertight" on removal of the controlling clips and tapes.

Further exploration revealed no injury to adjacent structures or to any other contents of the abdomen. The puncture wound of the liver was excised and sutured. The upper abdomen was drained and the incision closed in layers.

The patient's condition at the end of the operation was satisfactory. Six pints (3,400 ml.) of blood was administered intravenously during the operation to replace blood loss.

Post-operatively, he was maintained on intravenous infusions, gastric suction, and heavy dosage of penicillin and streptomycin. No anticoagulants were used. He made steady progress for 48 hours after operation, when he had sudden pain in the right hypochondrium and a rigor with a temperature of 104° F. (40° C.). The only abnormal finding was some tenderness in the right hypochondrium. The chest was clear clinically and radiologically. A retroperitoneal infection was considered the most likely cause of his symptoms, and intravenous chlortetracycline was given for three days. Blood culture taken at this time proved sterile. He subsequently ran a low-grade pyrexia, and three days after operation he developed jaundice, which lasted for six days. A further rigor, with a temperature of 103° F. (39.5° C.), occurred on the ninth day, and intravenous chlortetracycline was again used, for five days. The haemoglobin had now fallen to 56%, and after transfusion with 2 pints (1,140 ml.) of blood it rose to 68%. A minor rigor occurred on the eleventh day, but thereafter the temperature fell to normal. The most likely explanation of these rigors was that a low-grade portal pyaemia developed after injury and suture of the portal vein.

Subsequent progress was uneventful and he was discharged from hospital one month after operation. When last seen, six months after operation, his haemoglobin was 100%, and all liver function and blood chemistry values were normal.

COMMENT

Four similar cases have been reported in the literature. In 1910 Hallopeau successfully repaired a gunshot wound of the portal vein in a 35-year-old woman. In 1920 Giorgi reported a similar case in a 35-year-old man, but the patient died five months later from an ascending urinary infection. During the 1914–18 war Gordon-Taylor successfully dealt with a portal vein injury in a soldier. Romanis (1916, 1916–17) had a case similar to that of Gordon-Taylor, but although repair of the portal vein was successful the patient died on the ninth post-operative day from a secondary haemorrhage from an eroded renal artery. In all the cases quoted above the wound involved only one surface of the portal vein.

Although laceration of the portal vein is a serious injury it is of note that none of the patients died as an immediate result of the injury. This is all the more remarkable, as four of the cases occurred between 1910 and 1920, when facilities for transfusion were almost non-existent. The fact that the patients were 38 years of age or younger probably played an important part in their survival. Santos and Carichio (1950) believe that portal vein bleeding is tolerated better than other forms of haemorrhage.

The present case is unusual in that the missile pierced both the anterior and posterior surfaces of the portal vein and so double suture was necessary.

The treatment of a linear wound of the portal vein where no loss or destruction of the vein wall has occurred is best carried out by suture. This method was used successfully in three of the five cases. Where a defect of the vein wall exists operative repair presents a difficult problem, as suture may unduly narrow the lumen. Moreover, ligation of the portal vein in man for periods longer than 20 minutes is

said to be fatal except in hepatic cirrhosis (Thole, 1939). A vein graft may not be immediately available to repair such defects of the vein wall.

Operating upon dogs, Csillag *et al.* (1953) have successfully repaired 20-mm. defects of the portal vein by suturing a serosal covered loop of bowel over the defect. They think that this method may be life-saving in cases of traumatic defects of the great abdominal veins in humans.

We thank Mr. H. Gordon Ungley for permission to publish this case and for his help and advice in the preparation of this article, and Sir Gordon Gordon-Taylor for kindly allowing us to publish details of a personal case of portal vein injury and for helpful criticism.

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Intestinal Obstruction as a Late Complication of Fibrocystic Disease of Pancreas

The three main clinical types of fibrocystic disease of the pancreas were first clearly distinguished by Dorothy Andersen in 1938. They are: (1) intestinal obstruction in the newborn infant; (2) persistent respiratory disorders in the young baby; and (3) the "coeliac syndrome" with wasting, failure to thrive, and fatty stools in the young child.

The separation of the disorder into these three groups raises the interesting question why they tend to occur in different age groups, and especially why intestinal obstruction should be comparatively common in the neonatal period yet very rare later. In 18 of Bodian's (1952) 116 cases of fibrocystic disease of the pancreas neonatal obstruction (meconium ileus) occurred; yet in none of his case records is there a description of intestinal obstruction occurring after early infancy. In the literature describing some hundreds of cases I have been able to find only two instances of this complication. The first (Levy, 1951) was in an infant of 7 months on whom laparotomy was done; the tentative diagnosis of intussusception was not confirmed, and at the subsequent necropsy it was demonstrated that the intestinal obstruction had been caused by putty-like material blocking the small bowel. The second (Fisher, 1954) occurred at 15 months of age, and in this case the obstruction was relieved successfully by ileostomy and pancreatin therapy.

The following report describes a case in which intestinal obstruction, occurring at 16 months, was overcome by medical treatment.

CASE REPORT

A baby girl was first admitted to hospital at 9 weeks with a history of failure to thrive despite her good appetite. She was the second child of healthy parents whose first child had died at 2 years from "pneumonia and coeliac disease." The diagnosis of fibrocystic disease of the pancreas in the present case was made from the typical clinical appearance, and was confirmed by the absence of trypsin from specimens of faeces and duodenal juice. She was discharged home, much improved, at 3½ months on a dried milk preparation with pancreatin granules, 10 gr. (0.65 g.) before each of five feeds daily. With only one mild and temporary relapse at 5½ months, when the dosage of pancreatin was increased, she remained well until her present admission to hospital at the age of 16 months.

The recent history was of mild upper respiratory infection two weeks before admission, when the child seemed "off colour" and lost her appetite. Two weeks later she became absolutely constipated and had one small food vomit. Because of the anorexia no further pancreatin was given by her mother. The following day two very small hard lumps of faeces were passed, but two days later glycerin suppositories and two enemata produced no faeces or flatus and she was then admitted to hospital.

On examination she was a rather underweight and irritable child with bouts of abdominal pain. The abdomen was distended and resonant, with audible bowel sounds but no visible peristalsis. A mass was palpable in the right iliac fossa, rather vague in outline and doubtfully indentable. The rectum was empty and no blood or mucus was passed. A barium enema showed a filling defect in the caecum, thought to be either a faecal mass or, less probably, an ileocolic intussusception. As the patient's general condition was good, it was decided to keep her under observation for some hours. On the following morning she started to vomit large quantities of dark brown fluid, and hourly gastric aspiration with intravenous glucose and saline drip was instituted. Laparotomy was now decided upon, but was postponed until adequate hydration had been restored. That evening a small amount of flatus was passed per rectum and operation was further postponed. Olive oil enemata were given four-hourly, alternating with oral pancreatin, 40 gr. (2.6 g.) four-hourly, and were well tolerated throughout the night. Next day five dark yellow sticky stools were passed, with consequent relief of abdominal distension. Oral fluids were now tolerated and intravenous infusion was discontinued. A course of chlortetracycline was given for the respiratory infection. She continued to have three or four soft stools each day, and her recovery thereafter was uneventful.

COMMENT

In this case of fibrocystic disease of the pancreas early acute intestinal obstruction occurred at 16 months. It was evidently caused by inspissation of small-bowel contents and is presumed to have been due to the omission of pancreatin during an acute infection. This state of affairs is symptomatically analogous to meconium ileus in the newborn. One wonders if there is some difference between faeces and meconium to account for the markedly different incidence of intestinal obstruction in neonates and in older children; and, also, what part pancreatin does in fact play. It appears from the three reported cases that in inadequate dosage it may precipitate obstipation, and yet some children with fibrocystic disease of the pancreas do not obstruct although they have never had pancreatin.

The necessity for surgery in these cases seems to depend on the evidence for and against intussusception. In our case there had been no blood passed per rectum and the *x*-ray appearances were more typical of faecal obstruction than of intussusception. The child's good general condition allowed us to temporize, and a medical regime of oral pancreatin and oil enemata rapidly relieved the obstruction.

I am grateful to Dr. John Apley for permission to publish this case and for all his help.

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Reviews

NURSING OF THE NEWBORN

Nursing Care of the Newly Born Infant. By W. S. Craig, B.Sc., M.D., F.R.C.P.Ed., M.R.C.P., F.R.S.E., in collaboration with M. F. G. Buchanan, M.B., Ch.B., M.R.C.P., D.C.H., R. J. Pugh, M.B., Ch.B., M.R.C.P., D.C.H., and Miss M. Pattullo, R.G.N., S.C.M. Chapter on Mothercraft contributed by Miss M. J. W. Taylor, R.G.N., S.C.M., M.T.D. (Pp. 472+viii; illustrated 35s.) Edinburgh and London: E. and S. Livingstone. 1955.

The outstanding feature of this well-produced volume is its illustrations, of which there are no fewer than 224. The book is intended primarily for pupil midwives and should prove extremely valuable to them and, indeed, to all paediatric nurses and others who have to care for the newborn. Stress is laid on the development of the normal infant, and pathological conditions are dealt with subsequently. The physiology and pathology of breast-feeding are clearly explained and the principles of nutrition well discussed. Minor disorders—a very important section—trauma, congenital malformations and infections follow, and then a chapter on the care of the premature infant. The last four chapters are devoted to selected clinical problems, the treatment of emergencies, selected nursing problems, and laboratory and therapeutic aids.

It is unfortunate that the dose of vitamin K advised is 5 mg. four-hourly—which is certainly a dangerous overdose for any premature baby. The illustration of a subcutaneous infusion shows the fluid being given by syringe into the axilla, and it is suggested that hyaluronidase should be added to the fluid before administration. This is not the best method. In discussing oxygen therapy no mention is made of retrolental fibroplasia, nor is there any instruction about controlling the oxygen tension. Resuscitation is thoroughly considered, and the overriding importance of gentleness is stressed repeatedly. However, in case the midwife's patience gives out, insertion of a finger into the baby's mouth, artificial respiration, mouth-to-mouth insufflation, and smart tapping of the buttocks are all recommended, and intramuscular nikethamide or lobeline if respirations have not begun within two minutes of birth. Although it is stated that intragastric oxygen is to be preferred, few midwives will have this available and may therefore be tempted to apply these other remedies, which may be to the detriment of the infant. Professor Heaf is misnamed Heath, and the reference to vaccination in the index is given as p. 426, but there is no mention of the subject there. Apart from these and a few other minor considerations the book is to be thoroughly recommended.

WILFRID GAISFORD.

AMINO-ACID METABOLISM

A Symposium on Amino Acid Metabolism. Sponsored by the McCollum-Pratt Institute of the Johns Hopkins University. Edited by William D. McElroy and H. Bentley Glass. (Pp. 1,048+vi; illustrated. £5.) Baltimore: Johns Hopkins Press. London: Oxford University Press. 1955.

This volume consists of papers by some 80 contributors, and discussions on these, presented at a symposium on amino-acid metabolism held at the Johns Hopkins University, under the sponsorship of the McCollum-Pratt Institute, on June 14–17, 1954. A feature in the planning and publication of these contributions was the selection of one or two participants who would summarize the present state of knowledge of the metabolism of a group of closely related amino-acids. The book is arranged according to these various groups and in the order in which they were presented at the symposium. Thus under Part 1 is a general consideration of amino-acid metabolism; Part 2 includes the metabolism of glutamic acid, proline, ornithine, citrulline, and arginine; Part 3, the metabolism of histidine, leucine, isoleucine, valine, and lysine; Part 4, the metabolism of methionine, cysteine, and threonine; Part 5, the metabolism of glycine and serine; Part 6, the metabolism of aromatic amino-acids; and finally there is a summary by Dr. Bentley Glass.

Our understanding of the expanding interrelationships of the several groups of amino-acids probably constitutes the most outstanding feature of recent advances in amino-acid metabolism. From the beginning to the end of the symposium great stress has been laid on the numerous transaminations that occur and on the amino-acid pool, to which at least sixteen amino-acids contribute. But these form only part of the interrelationships where glutamic and aspartic acids stand at a crossroad from which, as Bentley Glass states, "there radiate the connections between the tricarboxylic acid cycle and the ornithine–citrulline–arginine cycle; and the proline–hydroxyproline pathway projects from glutamic acid in yet another direction." Then histidine connects on the one hand with pentose metabolism, and in its own demise participates in the synthesis of the nucleotides and of the new methyl groups needed in making methionine, choline, etc.; while in a third connexion it links back to the crossroads where stands glutamic acid. Valine, leucine, and *iso*leucine are synthesized by parallel and interconnecting paths, and through their degradation terminate in aceto-acetate, fatty acid metabolism, and the Krebs cycle. In their synthesis valine and *iso*leucine are tied up to threonine and homoserine, and through the latter to the complex consisting of the methionine–homocysteine–cystathionine–cysteine–homoserine group. Lysine metabolism also hinges round glutamic acid as the nodal point. The aromatic amino-acids trace back to the carbohydrates, and in their degradative metabolism they are assembled into pigments, hormones, auxins, and vitamins. And so one could go on, for the number of different amino-acids is now over the 50 mark. This symposium also demonstrated that we now have a deeper insight into the mechanism of action of various coenzymes, in particular of folic acid derivatives. One of the most important discoveries is the ferrous–sulphydryl type of enzyme.

This is a book for the biochemical specialist written by an international group of experts but presented in a very readable form. The editors and the publishers are to be congratulated on an outstanding production.

D. P. CUTHBERTSON.

SURGICAL DIAGNOSIS ILLUSTRATED

Surgical Diagnosis. By Philip Thorek, M.D., F.A.C.S., F.I.C.S. Drawings by Carl T. Linden. (Pp. 320+xi; illustrated. 96s.) Philadelphia and Montreal: J. B. Lippincott Company. London: Pitman Medical Publishing Co. 1956.

This is a very unusual book, both from the brevity of its text and the profusion of its illustrations. To have covered the whole subject of surgical diagnosis in 300 pages is a remarkable feat, but to have provided illustrations which might almost replace the text is even more remarkable. Still more remarkable is the fact that both are so good. The author has a quite exceptional power of compressing all the essentials of description in the briefest possible space; the artist has an equal power of expressing the descriptions in visual forms. It is a very rare and happy combination.

The book might perhaps be best described as a luxury synopsis—a gold mine to the senior student, or still more to the experienced surgeon who wishes to refresh his knowledge with a minimum of effort. To the ordinary student it would be somewhat of a snare, for the science and practice of surgery cannot be learnt from pictures, even of this quality. But later on when he comes to revise the knowledge he has gained at the bedside he will appreciate their value; and the greater his experience the more will he appreciate at their true value the cogency of the text and the superb artistry of the illustrations.

HENRY SOUTTAR.

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GLUCAGON

Soon after the discovery of insulin it was noted that certain extracts of the pancreas might induce a rise rather than a fall in the level of blood sugar when injected intravenously into animals. The name glucagon was applied to this hyperglycaemic factor of the pancreas as early as 1923.[1] Since then many commercial preparations of insulin have been shown to contain this factor, especially American preparations. British and Danish preparations are crystallized by a different method and are free of hyperglycaemic activity.[2]

Glucagon can be extracted from the pancreas of various mammals,[3 4 6 8] including man,[7] and also from the gastric and duodenal mucosa[3 4 5] and from the abdominal lymphatics and spleen.[9] A similar substance has been isolated by some workers from the urine of normal human beings,[9] from diabetic patients, and from the urine and blood of animals made diabetic with alloxan,[10] though others have not confirmed this.[7] Glucagon appears to be an endocrine secretion of the pancreas. It is not found in the external secretion[3] and can still be recovered in normal amounts after ligation of the pancreatic duct[3 4] and after destruction of the β-cells of the islets by alloxan.[2 4 6] This suggests that it may be secreted by the α-cells. The suggestion is supported by the occasional occurrence of familial hypoglycaemia in infants with otherwise normal endocrine and hepatic functions, in whom no α-cells can be found and in whom there is no hyperplasia or adenoma of the β-cells.[11] Conversely, hyperplasia of the α-cells is found in a strain of mice with hereditary obesity and hyperglycaemia.[12] Conclusive proof of the origin of glucagon from the α-cells is, however, still lacking. Treatment with cobaltous chloride damages or destroys α-cells but reduces the glucagon content of the pancreas only partially[13] or not at all.[6 14] Synthalin A is said to destroy α-cell function more completely and to lead to hypoglycaemia.[17]

Glucagon is a polypeptide, similar to insulin in its physical properties but differing in its amino-acid content.[18] It has recently been crystallized.[19] Its primary action is to stimulate phosphorylase activity in the liver, thus increasing glycogenolysis and leading to hyperglycaemia.[3] There are several reasons for regarding the liver as the primary site of action of glucagon. Glycogenolytic activity can be demonstrated in liver slices.[3] The effect of glucagon *in vivo* is greater when it is injected directly into the portal circulation than after intravenous injection.[20] After intravenous injection of glucagon in man the glucose content of the hepatic vein is raised more abruptly than the peripheral venous content.[21] The effect of glucagon is enhanced when the liver glycogen content is high[16] and is depressed when this is reduced in animals by a prolonged fast[4 6] or in man by hepatic cirrhosis.[21] The hormone is without effect in animals after removal of the liver.[4 6 22] The action of glucagon is impaired in the presence of diabetic ketosis in animals, again probably as the result of reduced glycogen in the liver.[24] In man, labile diabetics are inclined to show less response to intravenous glucagon than obese diabetics or normal people,[25 26] but this is not invariably so.[5]

The precise role of glucagon in the regulation of carbohydrate metabolism and in the pathogenesis of diabetes mellitus is not fully understood. It is not antagonistic to insulin, in the sense that it does not inhibit the peripheral utilization of glucose[27]; rather, the two hormones seem to act in synergism. Perfusion experiments on the pancreas[28] and experiments involving anastomosis between the pancreatic circu-

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lation of one animal and the systemic circulation of another[24] suggest that the secretion of both hormones is regulated by the blood-sugar level and that their activity is reciprocal. Secretion of glucagon is stimulated by hypoglycaemia and secretion of insulin by hyperglycaemia. Irregular oscillations in the fasting level of blood sugar have been observed in man and in the dog. The venous level falls as the arterial level rises and vice versa, suggesting that the fluctuations are related to the supply and utilization of glucose. The fluctuations are abolished by eviscerating the animal, thus depriving it of all sources of glucagon, and are restored by injecting glucagon, but they are unaffected by abolishing adrenal medullary activity with ergotamine and by removing the adrenal glands.[29] It has been suggested that the main function of glucagon is to make the liver glycogen stores available for insulin activity at the periphery, but if insulin is absent or is present in relatively low concentrations glucagon may actually promote deposition of glycogen in the liver, since its effect upon phosphorylase activity is reversed in the presence of high concentrations of glucose.[6] There is also evidence that glucagon may be concerned in the satiety mechanism, since gastric motility and hunger sensations can be depressed by intravenous administration in man.[30]

The diabetic state resulting from total pancreatectomy in man or in animals is less severe and requires smaller doses of insulin than severe spontaneous diabetes mellitus or diabetes due to alloxan.[31 32] Moreover, dogs from which 90 to 95% of the pancreas has been removed require more insulin than those subjected to total pancreatectomy.[33] Again, spontaneous diabetes in man and alloxan diabetes in animals improve after total pancreatectomy, and sensitivity to insulin increases.[34 35] These phenomena suggest that the secretion of glucagon by the α-cells persists in the pancreas of human diabetics and of animals with alloxan diabetes, and that the removal of this hyperglycaemic influence explains the benefit which results from subsequent removal of the pancreas. Whether glucagon is important in the pathogenesis of diabetes mellitus is quite another matter. Only when given by intravenous infusion does it enhance the glycosuria of animals subjected to partial pancreatectomy, and even then the effect is transient.[23] Even high doses of glucagon given over a long period do not induce diabetes mellitus.[36] Finally, there is no significant difference in the glucagon content of the human pancreas at necropsy as between diabetic and non-diabetic subjects.[7]

The relationship of glucagon to pituitary growth hormone is pertinent to its possible role in diabetes mellitus. The administration of growth hormone has been shown to liberate glucagon into the portal blood in animals[24 37] and to produce a transient hyperglycaemia in man.[38] The hyperglycaemic substance found in the urine of normal animals disappears after hypophysectomy.[9] There is also evidence that the α-cells are influenced by the growth hormone. They diminish in number and size, at least temporarily, after removal of the hypophysis, while the β-cells are unaffected,[22] and in mice with hereditary obesity and hyperglycaemia the hyperplasia of the α-cells is abolished by the same procedure.[12] α-Cells predominate over β-cells in the embryo; the proportions are equal in the newborn, and with advancing childhood the ratio of α-cells to β-cells gradually falls, reaching 1:4 by the end of the growth period. In human diabetics α-cells predominate, especially in childhood, but the disproportion is not as great as in diabetes due to alloxan in animals, and the proportion of α-cells varies from case to case and does not parallel the severity of the diabetes nor the requirements of insulin.[22] Though administered growth hormone is undoubtedly concentrated in the islets (as shown by isotope experiments),[39] and though it undoubtedly induces islet hyperplasia, the specific effects upon the α-cells are much less predictable and vary considerably according to the species of animal studied and the staining technique used.[15]

There is some evidence that glucagon plays a part in lipid metabolism. Different workers disagree about its effects on ketosis. Some say that it inhibits ketosis,[40] others that it has no influence.[6 36] Still others believe that the pancreas contains two factors, one of which increases ketosis, while the other inhibits it.[24] Glucagon also depresses the synthesis of fatty acids and promotes their oxidation, as shown by the rate of incorporation of labelled acetate.[41] Destruction of the α-cells by cobaltous chloride in rabbits leads to hypercholesterolaemia.[42] Glucagon has been shown to restore the serum lipids to normal after pancreatectomy in animals, but these results may have been due to contamination by insulin.[6] Possibly such effects as glucagon has on lipid metabolism are purely secondary to those exerted on carbohydrate metabolism.[35]

Undoubtedly there is good evidence that glucagon is a second hormone of the pancreas. It is probably secreted by the α-cells of the pancreatic islets, and it may be under the control of the growth hormone. Glucagon appears to be one of the factors concerned in the regulation of the level of blood sugar both in health and in the diabetic state, but its role would seem to be no more than a subsidiary one.

ANTIBODIES AGAINST CANCER

Ever since the discovery of antibodies as a defence mechanism against microbial disease, the idea of employing them against cancer has been an attractive one. The quest justifies itself on the grounds of the marvellous specificity of antibodies and the varied manifestations of the immune mechanism. But if there is no antigenic difference between cancerous and normal tissue then all these efforts are in vain. The best-established evidence on the question, that of E. Weiler[1] and of M. Seligmann and colleagues,[2] is to the effect that cancer cells merely lack an antigen which the corresponding normal cell possesses. To make practical use of this negative feature of the cancer cell will require something akin to genius. T. S. Hauschka,[3] reviewing the situation in 1952, wrote, "Eventual demonstration of specific neoplastic antigens appears dubious, since the critical results to date have been largely negative."

Nevertheless, a cancer antigen may be sitting in the cell waiting to be discovered and made use of. The hypothesis is in any case impossible to disprove. A cancer antigen may be defined as a substance present in the cancer cells and absent elsewhere in the body which is antigenic either in its own host or in another. The old idea of a substance peculiar to all the tumours of a species is giving way to more modest views, of a substance peculiar to certain kinds of tumour or even a substance peculiar to each individual tumour. But the old idea has by no means been completely rejected. There are two main biological ways of attempting to detect such a cancer antigen—namely, by showing that the tumour evokes a specific immune reaction either in its own host or else in another host. Either of these methods could yield evidence of a cancer antigen which might remain undetected by the other, though in general the more delicate discrimination might be expected to occur in the host of origin. It is for this reason that the failure of Weiler and of Seligmann *et al.* to find a cancer antigen need not cause despondency, for the method they used was to inoculate the tumour into another species, which may have been incapable of making the subtle distinction necessary.

J. B. Graham and R. M. Graham,[4] on the other hand, recently examined the sera of 48 cancer patients for antibodies to their own tumours by the complement-fixation technique, using as antigen an extract of the tumour containing chiefly desoxynucleoprotein. They found antibodies in twelve sera, the majority of negative sera coming from patients with far-advanced lesions. The cancers were mainly squamous-cell carcinomas of the cervix. It could be argued that the antigens concerned may also be present in normal tissue or that they may be irrelevant to host resistance to the tumour; for example, they may be bacteria or moulds infecting the tumour or even abnormal secretory products of the tumour, whose destruction would not hinder tumour growth. The authors' results suggest, however, that there was a relationship between these antibodies and a favourable prognosis. Further evidence of this kind, on a sound statistical basis, would contribute more than anything to a solution of the problem. Another recent report of a positive kind comes from Japan, where K. Kobayashi and H. Kawasaki,[5 6 7] following up the early German work in this field, found antigens present in cases of human gastric cancer which were absent from normal gastric mucosa. They prepared antibodies in rabbits, and antigens by extracting the tumours either with alcohol or saline. This result would appear to contradict the earlier-mentioned work, but gastric cancer may be a special case, or different substances may have been extracted. Hardly any two extraction methods are the same. Recent developments suggest that the most promising substance to extract may be the nucleoprotein, as done by Graham and Graham.

R. W. Baldwin[8 9] has studied tumour immunity using a highly inbred strain of rats and transplanted tumours which had recently been induced in the same strain. He caused the transplant to regress by means of ligation or by injection into it of an alcoholic extract, and found that in some cases of slow-growing tumour the animal was immune to further implants of the same tissue. The author is inclined to attribute the result to a genetic divergence of the tumour from its strain of origin rather than to a specific cancer antigen. The wisdom of this is confirmed by an accompanying paper of A. and L. Cohen,[10] who report an apparent spontaneous mutation in such a transplanted tumour in its very first passage. This finding illustrates the weakness of attempts to detect specific cancer immunity with transplanted tumours: they are all open to the possibility of non-specific genetic divergence. It is becoming more and more evident that only the cure of a tumour in its own host, preferably where metastases exist, will carry any real conviction in these *in vivo* studies. In the special case of the so-called virus tumours of

[1] Weiler, E., *Z. Naturforschg.*, 1956, **11b**, 31.
[2] Seligmann, M., Grabar, P., and Bernard, J., *Sang*, 1955, **26**, 52.
[3] Hauschka, T. S., *Cancer Res.*, 1952, **12**, 615.
[4] Graham, J. B., and Graham, R. M., *Cancer*, 1955, **8**, 409.
[5] Kobayashi, K., *Tohoku J. exp. Med.*, 1956, **63**, 185.
[6] —— ibid., 1956, **63**, 191.
[7] —— and Kawasaki, H., ibid., 1956, **63**, 203.
[8] Baldwin, R. W., *Brit. J. Cancer Res.*, 1955, **9**, 646.
[9] —— ibid., 1955, **9**, 652.
[10] Cohen, A., and Cohen, L., ibid., 1955, **9**, 600.
[11] Strauss, A. A., Saphir, O., and Appel, M., *Schweiz. med. Wschr.*, 1956, Suppl. **20**, p. 606.
[12] Coombs, R. R. A., Bedford, D., and Rouillard, L. M., *Lancet*, 1956, **1**, 461.

fowls and certain mammals, antisera prepared against the virus associated with the tumour have often been completely effective in destroying the tumour. If certain forms of human cancer, for example leukaemia, were found to be caused by a virus then spectacular therapeutic results with antisera might be expected. A clinical study recently published by A. A. Strauss and colleagues[11] gives an account of their successful treatment of cancer of the rectum by electrocoagulation. They believe that the theoretical basis of this treatment is that partial destruction of the tumour allows the body's immune mechanism to hold in check the remaining cancer cells. The evidence for this explanation is, at best, suggestive, though it may eventually be substantiated.

In short, the evidence so far gathered that cancer can evoke a specific immune response is slender. But it is certainly sufficient to justify further study, particularly by the new techniques in immunology which appear from time to time; the recent development of a method for studying the surface antigens of human epidermal cells is a case in point.[12] Finally, it may be said that therapeutic measures based on the immune hypothesis, provided they can prove their worth, are by no means to be discouraged.

SUSPENSE CONTINUED

On Monday this week Mr. R. H. Turton, the Minister of Health, said in reply to a question in the House of Commons that the present average net earnings of a general medical practitioner are £2,222 a year, and that the corresponding figure for 1939 was £938. The Minister thus once again gives a misleading picture. He should have compared the present average with the average computed on the basis of what general practitioners should have been earning in 1939 according to the recommendations of the Spens Committee: and this figure is £1,111, not £938. Once more the Minister persists in ignoring the Spens recommendations. Lieutenant-Colonel Lipton asked Mr. Turton whether he would admit "that but for the difficult economic circumstances at the time, he would consider that the doctors have a good case for an increase." Mr. Turton reiterated that "in present circumstances it would not be right to give consideration to a claim for a general increase in remuneration." Thereupon Dr. Edith Summerskill asked the question which every doctor in the Health Service is now asking: "How does the Minister reconcile that answer with the recommendations of the Spens Committee?" Mr. Turton's reply to this was as follows: "The Spens Committee did not lay down any contractual obligation in this matter. It based its recommendation on what should be the level at which doctors entered the National Health Service."

This reply needs looking at closely. Mr. Turton seems to be referring only to the G.P. Spens Report, as the questions were directed to the earnings of general practitioners. The omission of reference to the Consultants Spens Report was therefore fortuitous, but the same principles govern both. The first part of Mr. Turton's reply suggests that the Government is trying to wriggle out of the matter by denying there was a contractual obligation. Does the Minister really think this will wash? The Government of the day in 1946 accepted the recommendations of the committee it had itself set up, and the profession accepted them too. Is the Government of 1956 going to repudiate these? The second part of Mr. Turton's reply is curious. It should be read in the context of the terms of reference of the G.P. Spens Committee:

> "To consider after obtaining whatever information and evidence it thinks fit what ought to be the range of total professional income of a registered medical practitioner in any publicly organized service of general medical practice; to consider this with due regard to what have been the normal financial expectations of general medical practice in the past, *and to the desirability of maintaining in the future the proper social and economic status of general medical practice and its power to attract a suitable type of recruit to the profession;* and to make recommendations." (Our italics.)

"To consider this with due regard . . . to the desirability of maintaining in the future the proper social and economic status of general practice" are the operative phrases in the terms of reference. It was these words that persuaded both general practitioners and consultants that they could enter a National Health Service with at least some confidence of fair treatment at the hands of successive governments. Mr. Turton probably knows that the future did not come to an end in 1948, 1951, or even in 1956, but is a continuing process. If he persists in his attitude of appearing to repudiate the two Spens Reports, then the medical profession will be faced with the gravest position that has arisen since the appointed day in July, 1948, and no doubt the representatives of the Negotiating Committee who met the Minister of Health on Wednesday made this clear to him.

PILLS ON THE CARPET

During 1950–4 ferrous sulphate tablets caused 39 accidental deaths in England and Wales, 38 of these being of children aged 1–4, the remaining one being of an adult woman. Children in this age group, and most

particularly those aged 1–2 years, are specially at risk to this cause of death. While this is for the obvious reason that they explore the environment by putting interesting bits of it into the mouth, J. O. Craig[1] has produced evidence suggesting that many of the poisoned children have exaggerated oral traits. In 25 cases of accidental poisoning of young children seen by him he took careful histories from the mother in order to find out whether the child showed in its behaviour any signs of oral craving. To compare with these he obtained from the mothers the "oral histories" of 25 children in a surgical out-patient department. In the poisoning group he classified 6 cases (24%) as normal, and in the control group 18 cases (72%). Moreover he found that a number of mothers whose children had been poisoned were exceedingly emphatic about their children's oral cravings, and he found some evidence too that certain of the children whose history was normal nevertheless probably had oral tendencies. The existence of pica in children has in the past often been brought to notice in relation to lead poisoning, though the fact that it is common in mild degrees in all strata of society must be well known to every observant layman. In Craig's control series, for instance, the severity of oral traits was considered to be "moderate" or "marked" in six cases (24%). Given a teeming population of exploratory toddlers, therefore, about a quarter of whom may be expected to seek oral gratification of their curiosity to a noticeable extent, it is not surprising that medicines, pills, and tablets, especially pills and tablets, should fall into their clutches. What is surprising perhaps is the prominence of medicaments[2] as causes of death, for deaths are relatively uncommon from such agents as petrol, paraffin, cleaning materials, and poisonous plants, though they do occur.

When this topic was discussed in the Section of Child Health at the B.M.A. Annual Meeting at Brighton the speakers expressed themselves very strongly on the danger of pills and tablets that resemble sweets.[3] Dr. Keith Simpson handed round some samples of pills that were indistinguishable from sweets, and the risk of marketing such preparations is clear. Even so, the drug manufacturers are not altogether to blame; they fulfil a demand, and a demand that comes from our own profession, which no doubt in turn is reflecting the patients' wishes. The director of one firm making ferrous sulphate tablets has recently stated[4] that, though his firm now markets white and virtually tasteless tab. ferr. sulph. co. *N.F.* (in response to comments in the professional press), they are not being prescribed; the demand "is for the coloured, sugar-coated tablets." While a toddler putting anything and everything into his mouth might not discriminate much between a coloured and a plain tablet, it seems reasonable to suppose that at least some children are more attracted to the bright and colourful than to the plain white (or perhaps black). Again, there is much to be said for invariably marketing certain preparations in "cellophane" envelopes or small packets. Ferrous sulphate might well be one of these, as suggested by I. O. B. Spencer,[5] and the antihistamines and barbiturates are also a special danger. Doctors and chemists can help too by telling parents about the dangers to children of some of these drugs, especially those that are relatively harmless to adults.

[1] Craig, J. O., *Arch. Dis. Childh.*, 1955, **30**, 419.
[2] Swinscow, D., ibid., 1953, **28**, 26.
[3] *British Medical Journal*, 1956, **2**, 163.
[4] Robinson, C. W., *Lancet*, 1956, **1**, 1015.
[5] Spencer, I. O. B., *British Medical Journal*, 1951, **2**, 1112.

NEW MORTUARIES

The publication of a White Paper[1] on the planning of mortuaries is an encouraging sign to those who work in public mortuaries that in future something may be done for this neglected type of local government building. Even to-day in our most populous regions as well as in country districts there are public mortuaries which are little more than accommodation for the dead, and they may or may not be fitted with a refrigerator. These buildings do not have the publicity appeal of new infant welfare clinics or mass *x*-ray machines; no votes are likely to be gained by the erection of a modern mortuary; consequently the development of this public service has been stringently economical. While it is not the misfortune of every family to have to visit a public mortuary to identify a relative—an experience that must be harrowing and likely to remain in the memory for a lifetime—anything that can be done to create pleasant and clean surroundings is surely worth while. Moreover, the working conditions for the pathologist should also be considered, not only so that his work may be efficient and accurate, but also to facilitate the demonstration and teaching, mainly postgraduate, which a modern mortuary provides.

The White Paper is therefore particularly welcome at a time when it is possible that some rationalization of mortuary services may be possible, and it should prove a useful guide to county architects and builders. An anomaly exists at present in many places, including London and Middlesex, that the mortuary is provided by the borough council, which is responsible for its maintenance as well as for the remuneration of the mortuary keepers, but it is used by coroners and pathologists, who are paid by the county council. Such is the pride of many borough councils that they would rather maintain a small and inadequate mortuary of their own than share with an adjacent borough in the development of a suitable mortuary and so halve their maintenance costs.

The general principles outlined in the White Paper are sound, though presumably of necessity in this short publication many important details have been omitted. For example, clerestory windows provide excellent natural lighting, while studio roofs are to be avoided. Terazzo flooring is cold but very clean, while composition floors break up in the damp. Electric points for inspection lamps and saws should be readily available. Features such as these can easily be studied if coroners and pathologists are consulted (as is suggested) in the planning of a mortuary, rather than the details being

[1] *The Planning of Mortuaries and Post-mortem Accommodation*, Ministry of Housing and Local Government, H.M.S.O. (6d.), 1956.

left to a sanitary inspector, as has happened many times. Perhaps more should have been said on the choice of mortuary attendants. It is clearly no more practicable for a busy and skilled pathologist to sew up the cadavers than it is for a surgeon to wash and sterilize his instruments. To carry the analogy a little further, few surgeons would nowadays shave and prepare an abdomen or scalp for operation. The pathologist could likewise be helped if skilled assistance was available for such tasks as loosening the calvarium and exposure of the sternum. A reasonable salary and conditions of work should attract the right men as attendants. The policy of appointing an unskilled labourer to the post of mortuary keeper on grounds of economy is unjustified, and can go far to nullify the improvements which a modern mortuary can provide. The second part of the White Paper describes the planning of a mortuary without post-mortem accommodation. It is difficult to envisage a mortuary where no necropsies would ever be required, and the purpose of these pages is obscure.

ATOMIC HAZARDS

On October 17 next the nuclear power station at Calder Hall, Cumberland, will begin a regular supply of electricity to the Central Electricity Authority's grid. Britain's place in the forefront of research in atomic energy and its application to peaceful purposes will thus be signally marked, though some years will elapse before enough power is available to relieve the coal shortage. Meanwhile other reactors are being constructed, and the safe disposal of atomic waste will be an increasing problem. Some of it is being discharged into the sea, and studies of radioactivity in fish, seaweed, and sand have been progressing for some years now.[1] Natural radioactivity in the sea is at an exceedingly low level, radio-potassium providing about 90% of it,[2] and animals and plants living more than a few hundred feet below the surface receive much less natural radiation than those living on land. Whether this affects their rate of evolution is a speculation that might be worth pursuing; such a study could indeed provide useful data on the mutagenic effects of natural radiation, and only considerable technical difficulties have prevented more being done on these lines. Possibly the relative lack of ionizing radiations in the ocean depths has allowed life to develop more slowly there, and might even account in part for the survival of the coelacanth. But because the rate of interchange between surface and deep water varies in different parts of the world, and active materials vary in the rates at which they decay, the particular places chosen for the disposal of waste have to be studied with some care. Apparently the Black Sea is one of the best depositories for fissile material, since the time taken for the deep water to move near the surface and be replaced by new water mixing downwards—the flushing time—is about 2,500 years. In the Atlantic and Caribbean the flushing time is probably only a few hundred years, and the water now at the bottom of the Atlantic may have been at the surface in Arctic latitudes only 150 years ago. While short-lived fission products can be safely disposed of in the ocean depths, there is still some uncertainty about the safety to commercial fisheries, and thus to man, of dumping there such long-lived fission products as radio-strontium.[2]

The more immediate health hazards to which the British Atomic Energy Authority's workpeople are exposed seem to be so well controlled that its second report[1] can say "employment in the Authority is safer than in most comparable industries," and in the year covered (April 1, 1955, to March 31, 1956) there has been no case of occupational illness or death, and no fatal accident.

[1] *Second Annual Report*, United Kingdom Atomic Energy Authority, H.M.S.O., 1956 (2s. 6d.).
[2] *The Biological Effects of Atomic Radiation*, Summary Reports from a Study by the National Academy of Sciences, Washington, U.S.A., 1956.

ZOXAZOLAMINE

A new substance, zoxazolamine, has recently been examined for its power to relieve spasticity in muscles. W. Amols[1] tested it on 28 patients with a variety of neurological disorders, and found that, when it was given alone, its effect was too small to be clinically useful, but if it was given with chlorpromazine then muscle relaxation was obtained. The dose of chlorpromazine varied from 10 to 50 mg. by mouth, and the dose of zoxazolamine was 500 mg. by mouth. Favourable results were obtained in most patients with spastic extremities. Those with decerebrate rigidity, torticollis, or disease of the basal ganglia were not benefited. Patients with grand mal seizures were made worse.

Zoxazolamine[2] has also been given to 100 rheumatic patients in whom the muscular stiffness made remedial exercises impossible. To these no chlorpromazine was given, and good results were obtained in 85; in these relief of the stiffness and aching was often complete within 30 minutes after taking the dose. In most patients the dose was 500 mg. three or four times a day. There were toxic effects in 43 patients, and in 13 of these the effects were serious enough to make further treatment impossible. They suffered from chills and fever, burning of the eyes, and rashes. The drug has also been given to children with cerebral palsy who had spasticity.[3] Large doses varying from 30 to 140 mg. per kg. body weight produced a decrease of muscle tone on passive flexion, but there was no consequent improvement in function in about half of the patients, and a high proportion of patients experienced side-effects.

A still further report[4] has been made on the use of this drug in spastic adults. A relaxing effect was best seen in patients with lesions of the spinal cord and was undoubted in 14 out of 18. The effects on patients with diseases affecting the brain, especially paralysis agitans and paraplegia, were less predictable and in some the drug made the symptoms worse. On the other hand, in one patient with encephalomyelitis, who suffered from severe spasms of the adductors of the thigh, great relief was given.

[1] Amols, W., *J. Amer. med. Ass.*, 1956, **160**, 742.
[2] Smith, R. T., Kron, K. M., Peak, W. P., and Hermann, I. F., ibid., 1956, **160**, 745.
[3] Abrahamsen, E. H., and Baird III, H. W., ibid., 1956, **160**, 749.
[4] Rodriguez-Gomez, M., Valdes-Rodriguez, A., and Drew, A. L., ibid., 1956, **160**, 752.

MEDICAL BLOOD PREPARATIONS

BY

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This is the first of two articles by Dr. Bogomolova, one of the delegation of Russian doctors who visited Britain last autumn as guests of the B.M.A. Her second article, on "Blood Substitute Solutions," will appear next week.

Blood transfusion as a method of treatment has become widely used in every field of medicine. Scientists, however, have not confined themselves to studying the method of blood transfusion; they have long since come near to finding means of utilizing the individual fractions of blood in treatment.

As far back as 1932 Filatov and Kartashevski, of the Leningrad Institute of Blood Transfusion, worked out the problem of transfusing blood plasma and erythrocytes, isolated from each other (Kartashevski and Filatov 1934), and plasma transfusion has now found wide application in medical practice for shock, burns, hypoproteinaemia, etc.

As is well known, blood plasma, in its turn, may be subdivided into a number of components, the so-called fractions. Each of these plasma fractions is endowed with a definite physiological activity, in proportion to which its use may be evaluated. For example, albumins are applied as a blood substitute in controlling shock. Globulin is a particularly important fraction of the plasma proteins. It is known that the concentration of immune antibodies in a purified gamma-globulin is 25 times greater than in whole blood. Fibrinogen is a protein of great physiological importance in blood coagulation.

In addition to using individual fractions of blood, it is possible to combine them and thus utilize interaction of the individual fraction. In recent years the Leningrad Institute of Blood Transfusion has produced several such preparations. The substances so obtained may be divided into the following groups: blood substitutes; haemostatics; stimulating preparations—that is, substances which accelerate the healing of wounds and sores; preparations for the treatment of anaemia; plastic preparations—that is, those required for plastic restorative purposes in surgery.

Blood Substitutes

Mention should be especially made of dried blood plasma. We have elaborated methods of storing dried plasma which enable us completely to avoid infecting patients with the virus of hepatitis. These methods consist in adding to the blood an antiseptic (tripoflavin) or sulphamides and then extracting the plasma and drying by the vacuum-freezing method (Krotova, 1952; Krotova and Depp, 1952).

The method of transfusing the erythrocyte mass, one of the blood fractions, has lately found wide application. We have proved that preserved erythrocytes can be kept for 30–40 days (Krotova, 1952).

Another preparation belonging to the group of blood-substituting media—namely, dried haemoglobin—is worth mention. Up till now it had not been obtained in a pure state, since, as a rule, a part of the haemoglobin is transformed into methaemoglobin in the process of drying. We have now worked out a method of preparing restored haemoglobin in a dry state (Andrianova, 1955). It is a red powder that contains no impurities and readily dissolves in water-and-salt solutions. A small dose of dried haemoglobin added to the blood serum suffices to raise the effectiveness of the latter.

Haemostatics

The second group of preparations comprises those intended for local haemostasis. These include the haemostatic sponge, dry thrombin and fibrin "cotton-wool," antiseptic biological tampon, fibrin powder, and haemostatic suppositories.

Haemostatic sponge is produced from blood plasma; it is of porous structure and looks like an ordinary rubber sponge. The haemostatic sponge is very hygroscopic, and, when applied to the bleeding spot, absorbs the blood and brings about its rapid coagulation (Bogomolova, 1951). It has been proved that the sponge left in the tissues of the body during haemostasis completely dissolves.

The neurogenic factor has been found to play an important part in the mechanism of action of the haemostatic sponge. Experiments on dogs have shown that sponge mechanically occludes the bleeding vessel and causes greater coagulation of the blood flowing from the bleeding-point; it acts also, above all, on the receptor apparatus of the vascular system and causes a reflex contraction of the bleeding vessels, which is of decisive importance in haemostasis. It has been found of great use in surgery.

The latest experiments carried out at the institute have helped in elaborating a technology for the production of haemostatic sponge from the blood of beef and dairy cattle. In use, these sponges are saturated with antiseptics, and are devoid of any antigenic properties (Klement, 1955).

Dry thrombin of the Leningrad Institute of Blood Transfusion is another haemostatic preparation (Andrianova, 1952). It arrests the bleeding of injured organs and is of particular importance in closed cavities. Thrombin, in combination with fibrinogen, is used in cases of special plastic operations when a physiologically adhesive material is required. This method is particularly convenient in skin-grafting. In such cases the strip of skin is impregnated with a thrombin solution, while the site on which the skin is to be grafted is anointed with a fibrinogen (or plasma) solution. The strip is applied to the previously prepared site, on which a clot of fibrin is formed that acts as a glue.

"Cotton-wool" made of blood fibrin belongs to the same class of haemostatic preparations (Filatov, 1955; Filatov and Teodorowitch, 1954); it also dissolves. Experimental investigations have proved that "homo-cotton-wool"—that is, cotton-wool obtained from homogenous blood—may be applied for haemostatic purposes in cases of injury of the internal organs. In such cases it is recommended that the cotton-wool should be dipped in a thrombin solution.

All the above biological haemostatic drugs can be widely applied. When left in the tissues of the body they completely dissolve, without bringing about any reactions. This has been confirmed by numerous clinical observations made by various investigators.

Biological antiseptic tampons containing antibiotics, such as penicillin and streptomycin, as well as antiseptics, are recommended to stop bleeding from infected wounds. Research carried out by a number of authors has shown that when a tampon saturated with penicillin or streptomycin is introduced into an infected cavity the antibiotic slowly penetrates into the blood, as from a depot. Investigation has revealed that a medium therapeutic dose of antibiotic appears in the blood within four days (Melnikova, 1954).

One of these preparations, the antiseptic biological tampon, composed of blood plasma with gelatin, is a porous, dry elastic mass of a light yellow colour (Bogomolova and Alexandrova, 1954). It can be made in any size or shape, and is packed so that it can be used for first aid to wounded on the spot.

Stimulating Preparations

The next group, the so-called stimulating preparations, includes sterilized serum made from the blood of donors. The preparation is obtained by appropriate treatment of human blood serum, which is then subjected to repeated

sterilization in an autoclave at a temperature of 125° C. As a result of the high temperature and pressure, the serum albumin disintegrates, and a gently acting protein preparation is thus created. It is a transparent brown fluid and is supplied in 10-ml. doses (Filatov, 1953).

Clinical experience has shown that the best results are obtained with sterilized serum when it becomes necessary to improve the processes of regeneration—that is, chiefly in cases of non-healing ulcers. The sterilized serum is used when treating gastric and duodenal ulceration and other diseases. It is introduced intramuscularly in increasing doses, ranging from 1 to 10 ml. daily, the course of treatment comprising 10 to 20 injections. Up to the present the Leningrad Institute of Blood Transfusion has treated more than 1,000 cases of peptic ulcer with sterilized serum. A favourable result was recorded in 90% of these, and complete healing in 40%. No aggravation or exacerbation of the disease process was observed, and there were no reactions or complications (Filatov, 1950).

Highly interesting data were obtained when sterilized serum was used as a solvent for penicillin. It appeared that when penicillin dissolved in sterilized serum is introduced intramuscularly it becomes possible to preserve a high concentration of the preparation in the body for a much longer time, and, what is of particular importance, to increase markedly the medicinal effect of the antibiotic (Filatov, 1955).

Yet another preparation, named haemohormonostimulin (Bakscht *et al.*, 1955), has been suggested for stimulant therapy. It is made of retroplacental blood and contains valuable hormones, the introduction of which jointly with the serum is particularly effective. Haemohormonostimulin is injected intramuscularly in single doses of 40–80 ml.—or, occasionally, in repeated doses—in cases of climacteric neuroses, ovarian insufficiency, climacteric dermatoses, and other instances of hormonal disorders in women. According to our data, the results obtained from haemohormonostimulin are undoubtedly superior to those produced by the use of conventional hormonal preparations, including synthetic ones. We believe that such a positive effect of haemohormonostimulin can be explained by the fact that on its introduction there takes place a combined action of the hormones and serum of pregnant women, so rich in active substances.

Treatment of Anaemia

Various preparations made from animal blood have long been used to stimulate blood formation in cases of anaemia. These include haematogen, haemol, and other blood constituents. Since blood preparations do not by themselves produce a rapid and lasting restoration of blood in cases of anaemia, the task was to combine them with medicinal drugs. The preparations so far suggested do not, however, meet the physicians' requirements, since they produce only a comparatively slow rate of blood regeneration.

A new haemoglobin-containing preparation, called haemostimulin (Kouralava 1954), has been tried at the Leningrad Institute. It is made of animal blood with trace elements added to it. As is well known, in addition to iron, necessary for the building up of haemoglobin molecules, a number of other metals, evidently acting as catalysts, participate in the process of blood regeneration. Such metals include copper and cobalt. Owing to the happy combination of its components, haemostimulin exercises a strong stimulating influence on blood formation and is successfully employed in treating hypochromic anaemia of various aetiology. When this preparation is administered to anaemic patients the haemoglobin content rises by a daily average of 1 to 1.5%.

In a number of cases haemostimulin has rapidly eliminated anaemia when the usual methods of treatment have proved unsuccessful.

Preparations for Plastic Surgery

This group of new preparations consists of those designed for plastic surgery. The first in importance are fibrin films, made of human blood as well as of the blood of beef and dairy cattle.

Films made of human blood can be used for plastic operations in cases of defects in the dura mater and peritoneum, and to cover wounds of the internal organs. Cheaper and more easily available fibrin films made of animal blood may be used externally (Filotov and Goschkina, 1950).

The question naturally arises: are not such films harmful to human tissues, since they are made of heterogenous blood and possess anaphylactogenic properties? It is well known that foreign protein, particularly when repeatedly applied, always brings about phenomena of general and local anaphylaxis. By properly treating animal blood we succeeded in eliminating the anaphylactogenic properties of heterogenous films.

Fibrin films are elastic. This property helps one to cover evenly the injured portions of the skin, thereby protecting the bared nerve-endings from external stimulation; the flow of nerve impulses from the injured area is also eliminated—a highly important point, according to Pavlov's teaching.

Fibrin films are also transparent. This makes it possible to observe the condition of the wound without risk of secondary infection during dressing and without further trauma to the wound. They also have a great capacity for adsorption, which is highly important clinically, both with regard to the extraction of toxin from the wound and rapid drying, and with regard to the creation of bactericidal depots—impregnation with bactericides having previously been done.

The fibrin film is capable of dissolving when acted upon by micro-organisms. This property is of some importance in the treatment of burns and other skin injuries, since dissolution of the film on the infected site makes it possible to recognize infection quickly, and thus prevent its spread over the whole of the wound (Goschkina, 1954).

Impregnation of the fibrin film with bactericidal substances prevents infection from spreading on the surface of the burn. The bactericidal action manifests itself the whole of the time the film is on the wound—that is, up to the moment when the film dries.

Clinical observations in over 2,000 cases of burns have proved that the films speed up the healing of burn wounds by four to five days as compared with other methods. They have been widely used in treating not only burns but abrasions, bedsores, and other skin injuries, but also for the repair of defects in serous membranes and the integuments of the organs. Considerable clinical experience has proved the unquestionable effectiveness of the fibrin film.

Of other preparations produced at the Institute of Blood Transfusion mention should be made of bioplastics. Two types of these have been made: (1) Rapidly resolving plastics for the construction of splints for use in gastro-intestinal anastomosis. Bioplastic splints are not only designed to facilitate gastro-intestinal anastomosis, but when left in the intestines they are a source of valuable nourishing substances (Filatov and Andrianova, 1952). (2) Slowly resolving bioplastics for use as intra-osseous splints in cases of fracture.

All the suggested plastics have been tested as resolving materials in plastic surgery, and the results have been good.

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JOINT MEETING OF BRITISH AND AMERICAN PAEDIATRIC SURGEONS

[FROM A SPECIAL CORRESPONDENT]

The British Association of Paediatric Surgeons held its third annual meeting, in conjunction with the surgical section of the American Academy of Paediatrics, in London on July 17, 18, and 19. Throughout was shown evidence of the close attention now being given to many previously neglected problems in this field and the high standard of results being achieved by the specialist children's surgeon.

The president was Mr. DENIS BROWNE (London).

Cardiac Surgery in Infancy

An expert panel consisting of Dr. W. T. MUSTARD (Toronto), Mr. D. J. WATERSTON and Dr. B. G. B. LUCAS (London), and Mr. F. R. EDWARDS and Dr. JOHN HAY (Liverpool) held a discussion on recent developments in cardiac surgery in infancy. Dr. MUSTARD started the ball rolling by stating his views on coarctation of the aorta in young infants. He stressed the diagnostic difficulties at this age, but said that if all babies with tachycardia had their femoral pulses palpated the condition would be recognized more often. At present he believed many babies with coarctation died before they were seen by a cardiologist, their deaths being ascribed to such causes as malnutrition. Dr. Mustard said the real problem was whether or not to operate in infancy. In his opinion the child with cardiac failure who did not respond to medical treatment should have an operation. This might be needed urgently, and he operated in the middle of the night if necessary. Mr. WATERSTON agreed about the urgency of treatment in young babies with coarctation who developed heart failure early. A number of them had fibroelastosis, and this was responsible for some deaths after operation. It was his practice to make a biopsy of the wall of the auricular appendage in an endeavour to diagnose fibro-elastosis. The panel agreed there was no way of doing so clinically, but Dr. MUSTARD felt that biopsy might not always be reliable. Dr. HAY said that he thought it important to study the natural history of the condition. This showed that if the young child with coarctation was well he should be left alone in infancy.

Turning to cyanotic heart disease in infancy, Mr. EDWARDS said the essential problem was to know how many of these cases were worth operating on at that age. Certainly cases of Fallot's tetralogy who went into failure early could be helped by a Blalock or Potts operation. He thought it difficult to know just how large an anastomosis to make, for what would be adequate later might be too large at the time. Because of this one had to be prepared to repeat the Blalock procedure on the other side at about 4 years of age. It was best, Mr. EDWARDS continued, if these children could be treated conservatively until they reached 5 or 6 years. Dr. HAY considered the indications for operation on young infants with cyanotic heart disease. He had found that what mattered most were cyanotic attacks and a failure to gain weight normally. Mr. WATERSTON agreed, and suggested a third indication—anginal attacks, which were not uncommon in these babies. He emphasized that cyanotic attacks tended to stop in hospital, and in this regard the mother's history should always be accepted.

Dr. LUCAS said the greatest anaesthetic problems were in the infants aged from a few weeks to several months. A relaxant and as little anaesthetic as possible should be given. Whilst hypothermia was necessary if the cerebral circulation was to be shut off, it was also useful in babies who had a defective ventilating system. For such cases he favoured operating at a temperature of 28–29° C. Dr. MUSTARD agreed that in all these cyanosed babies some degree of hypothermia was necessary, and he favoured 31° C.

Meconium Plugs

Dr. J. L. EMERY (Sheffield) reported the results of pathological studies on a number of babies who had intestinal obstruction as a result of impacted meconium, yet were not cases of Hirschsprung's disease or meconium ileus. It seemed that the abnormality must be in the meconium itself, which was still, Dr. Emery pointed out, somewhat of a mystery substance. A plug of white meconium was often found in these cases at the tip of the mass. The viscosity of meconium was related to its water content, and this had been found to be lower at the distal tip of segments of meconium seen at necropsy to be obstructing the bowel. This dry meconium could lead to stercoral ulceration.

Mr. R. E. ZACHARY (Sheffield) described the clinical features of these cases. There were two groups. Firstly, those with plugs of meconium, leading to abdominal distension and vomiting, which were passed after rectal examination or following a rectal wash-out. Secondly, a group of babies admitted between 4 days and 5 weeks of age who had perforations of the colon by hard masses of faeces. In six such cases coming to necropsy it had been possible to exclude Hirschsprung's disease and meconium ileus. Mr. Zachary pointed out that, though the first group had a benign course, there was the danger of death from inhalation.

Mr. P. P. RICKHAM (Liverpool) described a case of obstruction of the small intestine by meconium which had calcified. At operation there had been no evidence of meconium peritonitis. But after its removal and enterostomy the intestinal contents recalcified and solidified in three days, and finally the baby died at 28 days. At necropsy there was no mucosis and the bowel was normally innervated. He reported the condition, without being able to explain its nature, to draw attention to this subject.

Tension Emphysema

Mr. T. Y. NELSON (Sydney) read a short paper on tension emphysema in infants—a special group in which the emphysema was limited to one lobe, usually an upper or the right middle lobe. He thought many cases were due to hypoplasia of the bronchial wall and deficient cartilage in the bronchus going to the affected lobe. In others, a persistent ductus arteriosus, an anomalous vessel, or a flap of bronchial mucosa was responsible. Clinically there were two types. Some presented as emergencies in the neonatal period with respiratory distress and gross mediastinal displacement. Others were seen later in infancy, usually following an infection, though there was often a history, dating from birth, of wheezing or panting. These lobes could be distinguished from tension cysts by the fine lung markings which were seen radiologically. Though resection of the affected lobe was necessary, Mr. Nelson thought it might be an advantage if some form of more conservative treatment could be found which would enable lobectomy to be delayed until later. However, he did not think we yet had a suitable method.

Metabolic Response to Operation

Mr. A. W. WILKINSON (Aberdeen) read a paper in which he drew attention to some of the peculiarities and differences in renal function after injury in adults, children, and infants. Regardless of the nature of injury, older children showed the same kind of alteration in urinary function after injury as did adults, and seemed equally capable of the close conservation of sodium during, and after, potassium diuresis, even in the presence of intense oliguria. The dangers of overloading children, especially after burns, with water and sodium were as great therefore as in adults. In the first two months of life, however, the changes in urinary composition after operations such as pylorotomy were somewhat different, though there might be a similar but less marked transient potassium diuresis and sodium conservation. Whilst there was some individual variation, Mr. Wilkinson said there was nevertheless a fairly clear pattern of behaviour which was different. If it were true that the potassium diuresis in older subjects was a means of making endogenous water available for continuing such essential purposes as insensible water loss and urine formation, and the simultaneous sodium conservation allowed the maintenance of an

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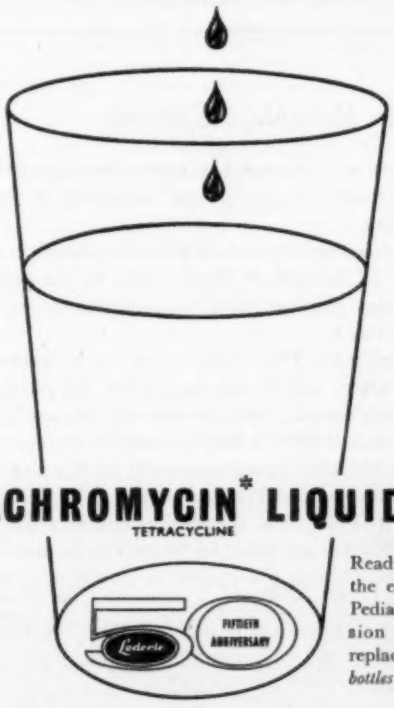

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adequate volume of extracellular fluid, some explanation must be sought for the different urinary composition in the young child. He thought the apparent immaturity of renal function in the newborn might be adapted to the greater total, and particularly extracellular, fluid volume at and soon after birth. If this were so, it might be that the newborn child provided more of its continuing water requirements from extracellular fluid than did the adult or older child. It did seem, however, as if the newborn child, like other young animals, arriving as it did with 15% more body water than the adult, was well prepared for the restriction of its fluid intake which was one of the features of the first day or two of life. This different water content and distribution in the young baby, in combination with kidneys which did not conserve sodium after injury as closely as the kidneys of older children and adults, suggested that the apparent immaturity of the infant kidney was a useful biological device.

Other papers read during the meeting dealt with cystic hygroma, portal hypertension in children, septic umbilical arteritis, funnel-chest deformities, eventration of the diaphragm, and the use of colon for reconstruction of the oesophagus.

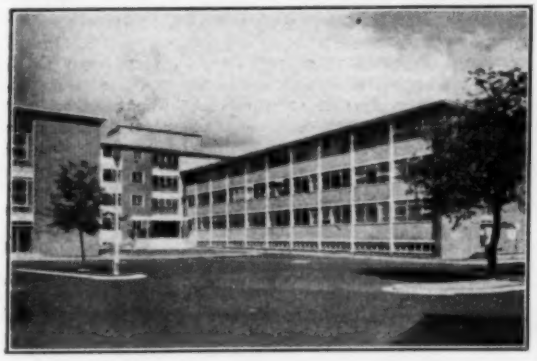
INSTITUTE OF PATHOLOGY AT NEWCASTLE

OPENING BY SIR HAROLD HIMSWORTH

The new Institute of Pathology (illustrated below) at Newcastle General Hospital was opened by Sir HAROLD HIMSWORTH, F.R.S., Secretary of the Medical Research Council, on July 28. The Institute provides accommodation under one roof for three laboratory services until now largely separated: the pathology department of the hospital, which also serves many hospitals outside the Newcastle Group; the Public Health Laboratory Service's laboratory which deals with Northumberland, most of Tyneside, and part of North Durham; and the Blood Transfusion Service's regional laboratory and headquarters. The directors of the three departments are Dr. B. E. TOMLINSON, Dr. A. I. MESSER, and Dr. SHEILA MURRAY, respectively.

Unity of Medicine

After the chairman of the Newcastle Regional Hospital Board, Mr. E. F. COLLINGWOOD, had welcomed the guests, Sir HAROLD HIMSWORTH spoke. The new Institute had a twofold significance, he said. It brought to the region laboratory facilities in keeping with the needs of modern medicine; it remedied deficiencies under which they had long laboured. But over and above this it embodied an imaginative appreciation of future trends. In every branch of natural knowledge technical advances opened up new possibilities of progress in contingent fields. At this ceremony, said Sir Harold, many of his audience would be remembering James Spence, whose ideas pervaded so much forward thinking in medicine. It was Spence's virtue always to see beyond institutions to their purposes; as he had never failed to maintain, human endeavour was not independent of its instruments, and its whole course could be diverted by inappropriate arrangement.



Medical knowledge was indivisible, continued Sir Harold, yet the demands of practice had created specialties, and nowhere was this more true than in pathology. Hospital pathology was tending to become divorced from public health work, and services like blood transfusion from both. That those engaged in these different activities should be separate specialists was probably inevitable, but that they should become isolated from each other was not. If they were to make their essential contribution to the advancement of medicine and their activities were not to degenerate into mere elaboration of technical expertise, then they must be brought into one community, living, working, and thinking together. This was the outstanding contribution of the new Institute. It united in one home the specialists of three separate but related services.

After Sir Harold's address the building was blessed and dedicated by the Archdeacon of Northumberland, the Ven. I. H. WHITE-THOMSON.

The Building

The Institute is sited between the gynaecological ward and the old hospital. Its construction involved the demolition of the former hospital department of pathology and a chapel. The Institute is a four-storeyed building, with a reinforced-concrete frame and floor. The ground floor, partly below ground level, is largely the preserve of the Blood Transfusion Service. Here there are rooms for bleeding and for the use of blood donors; laboratories, staff rooms, and offices; and a large blood bank, sterile room, and crystalloid laboratory. On the ground floor also is some of the hospital pathology department—the mortuary, viewing-chapel, and undertaker's room; the post-mortem rooms and students' gallery; and various staff rooms. However, most of this department is accommodated on the first floor, where are the histological, haematological, and biochemical laboratories; examination- and waiting-rooms for out-patients; and space for a combined museum and lecture room, and a photographic section. The Public Health Laboratory occupies the second floor, and besides its working-rooms there are laboratories for research, virology, and epidemiology, and the Service's regional administrative offices. On this floor also is a library for the use of all three departments. The top floor of the Institute is designed as an animal house.

The Institute, which covers some 68,000 sq. ft. (6,300 sq. m.), cost £240,000. Construction began in January, 1954, and was virtually complete in June this year. The architects were Messrs. Scherrer and Hicks, of London.

MEDICAL INSURANCE AGENCY

The annual meeting of the Medical Insurance Agency was held on July 26. Professor R. B. Green and Dr. Dougal Callander were elected members of the committee of management for three years, and the following were re-elected for the same period: Dr. Janet Bottomley, Sir John McNee, Mr. R. L. Newell, Dr. Henry Robinson, Sir Arnold Stott, and Dr. E. R. C. Walker. The report of the committee disclosed a new high level of service to the medical and dental professions, reflected in an ever-growing total of rebates on premiums. The audited statement of accounts for the year 1955 was adopted, and allocations to medical and dental charities were approved which, by the use of the covenant system, will result in their benefiting by an amount of about £22,000. The constantly expanding business handled by the agency on behalf of its clients has entailed the acquisition of additional premises, which have been secured in Flaxman Terrace, closely adjacent to the back of B.M.A. House. The staff has also been much augmented for a similar reason; and the new premises enable the accommodation required for them to be adequately provided. The total premium income collected by the agency is now almost two million pounds a year. Dr. James Fenton was re-elected chairman and Dr. Henry Robinson was re-elected hon. secretary.

Correspondence

Because of heavy pressure on our space, correspondents are asked to keep their letters short.

Purpose of Medical Education

Sir,—Professor G. W. Pickering's lecture (*Journal*, July 21, p. 113) is a further contribution to the slow evolution of ideas on medical education which have been a subject of controversy for more than half a century.

Of the many points raised in the lecture I must confine myself to two—university education and the teachers of medicine. As far as the details of the curriculum are concerned we may dismiss them by saying: "*Plus ça change plus c'est la même chose.*" As I read Professor Pickering's article I was hoping to learn what a "university education" means and how it differs from the education of a technical college, but I come away disappointed because all I read is "that the function of university education is to train the student's mind so that he can gather data accurately and so that he can learn to form a balanced judgment on those data." In other words, the function of the university is to teach him to learn facts and erect a critical mind thereon. But a good teacher in a technical science college can impart the same quality of education.

I have held ever since my undergraduate days in Cambridge that the original meaning of the word "university" has been forgotten in so far as it disregards and neglects the wider teaching of the "humanities" for medical and other science students. In these days it may seem economically useless to "waste" a student's time in a preliminary grounding in Latin, Greek literature and history, but no doctor can be less well equipped for his life's work by possessing a background of general culture. Specialism in the medical sciences begins now before the boy or girl leaves school at 16 or 17 years, and thereafter he has little chance of any further general education. He knows little or no Latin and no Greek, which together form the basis of the language of medicine. The qualified man of to-day, by his exclusive devotion to science, is lop-sided, no longer a whole man or a man in the round. The Greeks, from whom we claim to have derived the foundations of Western culture, had a word to describe the lop-sided specialist, βάναυσος, which means a technical mechanic, with a secondary meaning, "a low, vulgar, illiberal" fellow. He was despised by the Greeks to such an extent that when Themistocles had saved his country as one of the greatest Athenian soldiers they turned on him because they argued that so skilful a military leader must be a specialist and therefore without a liberal education.[1]

The university education of this country for medical undergraduates is nothing more than a technology. Even in 1905, when I first went up to Cambridge, there was no requirement to learn anything but preclinical subjects, except the evidence at the university entrance examination ("Littlego") which enacted some elementary Latin and Greek and the shadowy theology of Paley's *Evidences of Christianity*. But though a university medical student may hear nothing of the teaching of the "humanities" he has a great advantage, should he like to exploit it, which Professor Pickering does not mention. It is the many opportunities of mixing with students of other faculties whereby his mind, on brief occasions, may be liberated from the obsession of learning the cold facts of natural science. This escape, together with friendly contacts with great teachers of my day like Alexander Macallister, J. N. Langley, W. H. Gaskell, and others, are outstanding memories of my years at the university. But these things are adventitious to the course of preclinical instruction.

It may well be asked by those who are fascinated by the realities of science in the modern world: How can a basic knowledge of history, literature, the classics, and the arts make a man a better doctor? Surely he needs not these accessories to enable him to remove an appendix more skilfully than one not so trained. It is true that there is much pure handicraft in medicine, but we, as doctors, differ from the practitioners of other applied sciences, such as engineers, in that our material is human beings, for whose relief we need insight into their minds and emotions. The natural sciences can give us relatively little or no help here, but a study of man, gained by some knowledge of the humanities, will help us to realize that a sick man is not just one who is troubled by some organic pathology as an abstraction lifted out of the individual. Immediately our work brings us into close association with people we need something more than a technical knowledge, and that something can only be derived from a wider culture of the mind than that which is gained by the study of a pure technology.

But even natural science can be illuminated if the teacher can impart a sense of wonder in the young mind. In every part of our training we are in the presence of such stupendous mystery that there is scope indeed for the play of the imagination. Dry facts, or "data," must be learnt, but if they can be taught as a minute part of the vast biological scheme around us they can lose their dryness and become an expression of Nature's amazing art. Even our technical study can offer, therefore, more than a means of collecting data if our teachers keep in mind that each newly discovered fact of structure or function is a further revelation of Nature herself; just as each new knowledge of an individual is a further exposure of his personality, so shall we find the qualities of art in our physical studies and thus raise them high above a mere factual technology. To many this may seem woolly talk, but after some 52 years as student and doctor I am convinced, from what I have observed, of the fundamental value of an early and continuing study of the humanities and the elevation of the study of science above the simple collection of facts.

The third value which is the duty of all teachers to impart is the critical mind whereby the student will learn "to form a balanced judgment" on the data he has learned. Your space, Sir, is short for further reflection on this essential, but may I conclude by saying that if the student has a knowledge of, and respect for, the humanities, if his mind has been trained to exert its imagination by encouragement of the sense of wonder, and if he has been taught the analytical power of criticism he will be not only the best type of doctor but also a whole man.—I am, etc.,

London, W.1. ALECK BOURNE.

REFERENCE

[1] Toynbee, A. J., *A Study of History* (abridged), p. 305.

Sir,—It was with the greatest interest that I read Professor G. W. Pickering's address on medical education (*Journal*, July 21, p. 113), and I would heartily support his general thesis. Perhaps a few comments from one who has been experimenting with one of the methods of teaching which he would like to see may not be out of place. For some time I have been setting individual tasks for the students during their three-month appointment as clerks in the dermatological department at Guy's. Each task involves the preparation of written material which I correct and return to the student with appropriate comments. Each student is expected to attempt two or three such tasks during his appointment, and he is encouraged to go to the original sources for his information. The tasks set for them cover a fairly wide field and are intended to encourage the student to think for himself and develop his critical sense. Little help can be gained from textbooks, although the American books are useful when they provide a guide to the literature.

The experiment, so far, has been moderately successful, and the better students appear to tackle the work involved with zest, read the original papers with good discrimination, think about the problem set, and frequently produce very good essays. The less able student does not make the extra effort required and produces rather poor stuff. Nevertheless,

all seem to have derived some benefit from the exercise, since the librarian informs me that the students concerned used the library more fully and effectively than students usually do, a fact which bears out Professor Pickering's observation that the average medical school library is a place where the student reads only his textbook or his lecture notes.

The correction of these tasks, which may number from 30 to 45 in each three-month period, takes up a fair amount of one's time, and, although written corrections and comments may suffice, I am sure that the student would derive much more benefit if he could have spent half an hour or so discussing his written work with me; I, too, would have a better idea of his problems and difficulties, and would be the better able to guide him in his further reading or correct erroneous notions.

It seems quite clear from the brief discussions I have had with some of the students concerned that the curriculum of the Final M.B. of London University does not allow enough time for such teaching methods to be adopted on a wide scale, apart altogether from the problem of providing each teacher with a room of his own where he can discuss the work with each student. This tyranny of the London M.B. is resented by the more thoughtful students from the older universities, in particular Oxford, where it would seem that a less narrow view of medical education obtains.

I agree with Professor Pickering that the time has now passed when the student had to be packed full of facts before he was considered fit to be loosed on the world, and this should be reflected by a change in the attitude of his teachers and examiners. Students continually remind me that they must satisfy examiners, who still ask questions of the type mentioned by Professor Pickering, and, as long as examiners do so, who can blame the student if he looks upon exercises of the character I have described as intellectual luxuries which his timetable can ill afford?

With regard to Professor Pickering's comments on the contents of the curriculum itself, I think it would be a great pity if botany were to be excluded on purely utilitarian grounds. It is important for the undergraduate to learn to view life whole, and that means the whole of life, not just the animal half, but I agree with him that the student could do with much less anatomy, leaving the more detailed study to his postgraduate specialist training. I am not sure that some training in nuclear physics should be a part of all higher education, but I am certain it is needed by every doctor: most of us know so little about radioactivity and the effects of radiation that we, as users of radiation in diagnosis and treatment, have already added appreciably to the load of mutations that humanity carries. The greatest single need, however, is for further training in mathematics, at least to include the binomial theorem, elementary calculus, and an introduction to probability theory. Much biological work is now statistical, and some knowledge of statistical methods would seem to be desirable if the student is to be capable of critical appraisal of much of the results obtained in clinical trials and investigations into the alleged relationships between diet and disease, personal habits and lung cancer, to mention just one or two topical problems. I recently set some simple probability problems of the type represented by the question, "What are the chances in favour of the England captain winning the toss on all five occasions in a Test series if he always calls 'heads'?" Only one student in the group offered a solution, and that was wrong. This despite preliminary advice about looking up the binomial theorem or Pascal's triangle before attempting the answer.

There are several subjects in the final curriculum which I think are overdue for transfer to the postgraduate stage of training, and I would place anaesthetics high on this list, as modern anaesthesia is now so complicated as to require fully trained and skilled anaesthetists if the maximum safety is to be achieved for the patient.

The introduction of the pre-registration year gives us a great opportunity to revise the curriculum, so that the doctor can once again find his place in the learned community of the university, and thus lessen the danger of turning him into the indoctrinated technician which Professor Pickering so rightly fears may be the case.—I am, etc.,

London, W.1. E. J. MOYNAHAN.

Soap and the Skin

SIR,—The eulogy upon a neutral soap by my friend, Dr. Ian Martin-Scott, and Mr. A. G. Ramsay (*Journal*, June 30, p. 1525) appears at first sight to be justified by the scientific observations on the skin-fat factor and the *p*H and also by the clinical trials. It is known that keratin is more readily damaged by alkalis than by equivalent acid concentrations, and the work of Anderson[1] mentioned by Scott was but part of a research project in my clinics to evaluate the practical importance of treating the skin with buffered lotions and creams adjusted to its normal *p*H. In this project we had the assistance of J. W. Hadgraft, F.P.S., F.R.I.C., and I am indebted to him for further technical advice. We were disappointed that the skin failed to appreciate our concern for its acid mantle, and we found that our buffered preparations with a *p*H ranging about 5 were rarely better tolerated than the official creams and lotions, which are usually mildly alkaline in reaction. It is notable from the data given by Ramsay that, although the *p*H of the skin is increased to 8 after washing with toilet soap, 25 minutes later the *p*H has dropped to 5, so that the acid mantle is fully restored. Even if this is partly due to the adsorption of fatty acids from the soap, these acids are unlikely to irritate the skin, which normally has oleic acid in its oily secretions. Vanishing creams with a high proportion of free stearic acid are in common use and do not produce dermatitis, or, if they do, the causative irritant is usually the emulsifying agent, which may be triethanolamine.

The reported chemical and biophysical hazards of using common soaps fall into a proper perspective if one considers how often tablets of this alkaline irritant are rubbed into the hands with impunity, and even delicate skins tolerate the sparing use of a good toilet soap. Many patients with skin diseases tolerate and often benefit from the cautious use of soap and water, and the harmful osmotic effect of the latter upon broken or damaged skin is prevented by the addition of 1% of common salt. Few dermatological patients need more skilful nursing and the avoidance of external irritants than those with infantile eczema, but daily saline baths and the sparing use of a good soap have been part of our long-established routine and are well tolerated. The theoretical advantages of a neutral soap induced us to give it a clinical trial in the treatment of patients with infantile eczema. The results were no better than those obtained by the use of a toilet soap or one medicated with a mercurial salt which has been of value in infected eczema. The neutral soap was less soapy and appeared to irritate the skin in two patients. It may be significant that two instances of cutaneous sensitivity to triethanolamine were reported by Curtis and Netherton.[2]—I am, etc.,

London, W.1. R. T. BRAIN.

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[2] Curtis, G. H., and Netherton, E. W., *Arch. Derm. Syph.*, 1940, **41**, 729.

Involvement of Bronchi by Metastatic Pulmonary Tumours

SIR,—In discussing my report of a case of massive tumour embolism from Sully Hospital (*Journal*, February 25, p. 435), Dr. R. C. Jennings (*Journal*, March 17, p. 630) has raised the important point of bronchial involvement by metastatic pulmonary tumours. I agree that the presentation of an adrenal cortical carcinoma as an intrabronchial neoplasm is rare, but in our case the pathologist thought that this pleomorphic tumour was far more like an adrenal carcinoma than a primary bronchial tumour. It had an unusual and distinctive appearance which, in our pathologist's experience,

has not been encountered in the lung in the absence of an accompanying adrenal tumour. Nevertheless, we concede that the question is debatable.

On the wider subject of bronchial invasion by metastatic tumours in general, it was formerly thought that this phenomenon was rare. Seiler, Claggett, and McDonald[1] reviewed 52 cases from the literature, and reported 10 cases from the Mayo Clinic of metastatic malignant tumours suitable for resection. Gross bronchial involvement was demonstrated in 7 of their cases, in 4 of which bronchoscopic biopsy was positive. Though information was only given in 27 of the combined series of cases, bronchial involvement was noted in 17 and bronchoscopic biopsy was positive in 10 (16% of entire series).

Liebow,[2] who states that "an isolated metastasis may centre about, and even invade, a bronchus so as to suggest a primary lesion," illustrates this with examples from the kidney and colon. Judged by thoracic surgical reports, these are the commonest primary sites concerned, and the following cases, all of colonic origin, from the relatively recent practice of Sully Hospital are illustrative.

Case 1.—A woman aged 60 years first complained of left-sided chest pain in December, 1954. Seven months later radiography showed a collapsed left lower lobe; at bronchoscopy the left lower lobe bronchus was seen to be obstructed by growth, and biopsy showed necrotic tumour cells. In July, 1955, left lower lobectomy was done, the lobar bronchus being occluded by growth which microscopically was an adenocarcinoma of intestinal origin. Five months later she complained of colicky lower abdominal pain of six weeks' duration, and admitted having had bouts of diarrhoea over the previous seven months. Anterior resection involving hysterectomy was performed in January, 1956, for a papillary adenocarcinoma of the recto-sigmoid junction. She remains well at present.

Case 2.—A man aged 53 years complained in March, 1950, of bouts of constipation extending back over a year. Barium enema demonstrated a stricture in the ascending colon; right hemicolectomy was done, but no pathological report is now available. Nine months later he first noted cough and dyspnoea, which became gradually worse till he came for treatment two years later. Radiography showed collapse of the left lung; at bronchoscopy growth was seen occluding the lower end of the left main bronchus, and biopsy showed necrotic tumour cells. In February, 1953, left pneumonectomy was done, the main bronchus being occluded by growth which microscopically was adenocarcinoma of intestinal origin. A year later small metastases were suspected in the right lung. In April, 1956, six years after colonic resection and three years after pneumonectomy, he complains of some cough, but is still at work. Radiographically several circumscribed shadows in the right lung are slowly increasing in size.

Case 3.—In April, 1949, a woman then aged 56 years complained of six months' mucous diarrhoea and rectal bleeding. Abdominoperineal resection of the rectum was done for an ulcerated adenocarcinoma invading the rectal wall but not involving lymph nodes. She remained well till May, 1956, when she had several haemoptyses. Radiology showed a large tumour in the right upper lobe; at bronchoscopy a tumour was seen growing from the lateral aspect of the right main bronchus so that the right upper lobe orifice could not be identified; biopsy showed well-differentiated mucus-secreting adenocarcinoma of intestinal origin. Further operation has been declined.

—I am, etc.,

Penarth, Glam. W. R. PROBERT.

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2 Liebow, A. A., *Atlas of Tumour Pathology*, 1952, section V, fascicle 17. Armed Forces Institute of Pathology, Washington.

Chloroquine and Bleaching of Hair

SIR,—In the course of trials with chloroquine in the management of hypersensitivity states and of certain forms of rheumatoid arthritis, I came across two instances of universal bleaching of hair within six months after starting the drug in daily doses of 400 mg.

The first lady, aged 30, was taking chloroquine, 200 mg., since January, 1956, and attended my out-patient clinic in June of this year. I was immediately struck by her cheerfulness and optimism, so different from the previous occasions when she had bitterly resented the limitation in her activities caused by the disabling rheumatoid arthritis. Her change of outlook was not brought on by any recovery of her arthritis but by universal bleaching of her hair, including the eyebrows, which she considered a great improvement. She was quite sure that the bleaching was due to chloroquine. I was doubtful until I came across Dr. Sharvill's letter in the *British Medical Journal*.[1] Dr. Sharvill also referred to previous publications on this subject.[2 3]

A week later another lady, aged 46, was seen to have been converted from a dark blonde into a very fair one within five months of commencing chloroquine. Fortunately, she too seemed pleased with her apparent rejuvenation and was disappointed when the drug was cut down to one tablet daily, as her symptoms of hypersensitivity following infection earlier this year had subsided. In both instances the patients were more than satisfied with their new appearance as a result of chloroquine medication. Not all patients, however, prefer the albino type of depigmented hair. It might therefore be wise to mention this remote but possible action of chloroquine to patients about to undergo prolonged treatment with the drug.—I am, etc.,

Liverpool, 1. H. FULD.

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3 Tye, M. J., Schiff, B. L., Collins, S. F., Baler, G. R., and Appel, B., *New Engl. J. Med.*, 1954, **251**, 52.

Steroid Anaesthesia

SIR,—Dr. L. H. Lerman is to be congratulated upon the excellent manner in which he presented his preliminary communication (*Journal*, July 21, p. 129) on the clinical use of "viadril"—a new steroid anaesthetic. Just over a month ago Dr. Margaret Rooms and I published our findings from the use of this drug in a series of one hundred cases[1] and can confirm the conclusions arrived at by Dr. Lerman. Since then we have had an opportunity to use viadril as the basic anaesthetic for a number of intra-thoracic operations and can reaffirm the opinion that this drug enables "controlled respiration" to be obtained with greater facility than when thiopentone is so used[1 2]—that is, smaller doses of pethidine and muscle-relaxants being necessary. The necessity of an intravenous drip obviously rules out the use of steroid anaesthesia—in its present form—as a routine for short operations. For long and exacting operations, however, its use is to be recommended, as patients have such a remarkable sense of well-being during the early days of the recovery period instead of varying degrees of misery. This sense of well-being appears to be similar to that experienced by patients undergoing cortisone therapy.

An excellent review of the whole subject of steroid anaesthesia appeared recently in a contemporary journal.[3]—I am, etc.,

London, S.E.5. A. H. GALLEY.

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Maternal Death from Aspiration Asphyxia

SIR,—Once again Dr. R. B. Parker has rendered a signal service to the art and practice of obstetrics (*Journal*, July 7, p. 16), and if I may venture again to intervene it is chiefly to emphasize some of the points he makes, and to try to indicate the conclusions to which his article appears inevitably to lead.

In the first place it is right to insist that no patient undergoing forceps delivery should ever die from aspiration of vomit; for, as Dr. Parker says, such deaths are entirely preventable. The prevention of these tragedies is attainable if certain quite simple rules are observed.

(1) The lithotomy position should not be used in forceps delivery unless regional analgesia, in some form, is employed. It is difficult to ensure that the stomach is empty, for it empties slowly and intragastric pressure is high in labour, especially with

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the patient in the lithotomy position.[1] Most people agree that it is an abomination to inflict a wide-bore stomach tube on a patient at the close of a long and tiresome labour, and it is doubtful whether even this procedure ensures an empty stomach. The adoption of the lithotomy position for forceps delivery arose because of the failure to differentiate between gynaecological patients who are properly prepared for anaesthesia and obstetric patients who hardly ever are so prepared.

(2) The lateral position effectually abolishes the risk of aspiration of vomit. It is the position into which all patients are put when recovering from an anaesthetic to obviate any risk from obstruction to the airway from vomiting. The use of the Sims position, in fact, results almost inevitably in the head and shoulders of the patient assuming a semi-prone position during anaesthesia. All this is elementary, but it is failure to grasp the simple facts which is chiefly responsible for the fatalities. I have repeatedly invited anyone to produce records of even a single case of death from aspiration of vomit when the patient has been delivered in the lateral position, and as nobody has responded it must be an extremely rare event, if, indeed, it ever occurs. From the obstetric angle I venture to assert that there is no procedure necessary during forceps delivery which cannot be satisfactorily carried out with the patient in that position, provided one is familiar with it. It is merely a question of orientation.

(3) The method of anaesthesia is clearly a matter of importance. Many of us who have used open ether for forceps delivery for many years are convinced of its supreme safety.[2] Although vomiting frequently occurs, the coughing reflex is nearly always retained, and in any case if the lateral position is used all the conditions are present for safe delivery. It would seem from the evidence available that elaborate anaesthetic machines may in certain circumstances be a contributory factor in a fatal result, and I seriously suggest that the rigid lithotomy supports in hospital are particularly dangerous in forceps delivery. In regard to the question of the passage of an endotracheal tube, it must be remembered that this presupposes that the patient is already fairly deeply anaesthetized. Now, as vomiting and aspiration of vomit tend to occur during the *induction* of the anaesthetic,[3] it is in itself a procedure by no means devoid of risk. Presumably it would be performed with the patient in the dorsal position, which would diminish but not eliminate the danger.

Bleak as the prospect is, there are certain hopeful indications. One is, of course, Dr. Parker's impressive analysis of the situation, which should at least make those responsible for hospital obstetrics think very seriously. Secondly, meetings have taken place between obstetricians and anaesthetists in regard to this important matter, though any agreement on a solution appears, so far, to have eluded them, imperative though this is. Perhaps the most encouraging feature is that in at least two large teaching hospitals some (if not all) of the obstetric staff are teaching the lateral position for forceps delivery.—I am, etc.,

A. H. MORLEY.

London, N.W.7.

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3 Jeffcoate, T. N. A., *ibid.*, 1953, **2**, 951.

Debt to the Middle Ages

SIR,—Sir Francis Walshe's stimulating address at Sheffield University (*Journal*, June 23, p. 1441) displays the debt, long overdue, which we owe to the Middle Ages in Europe. If I may say so, it is to America also that we owe a debt for a good deal of the research work done on the Middle Ages by another famous neurologist, but also clearly a distinguished classical scholar, Dr. James J. Walsh. It is interesting to note that Alfred North Whitehead[1] says on our debt to the Middle Ages: "The Middle Ages formed one long training of the intellect of western Europe in the sense of order. There may have been some deficiency in respect of practice."

Now this contrasts rather with what was actually effected. James J. Walsh,[2] writing on the reform of the Prussian hospitals, whose state had fallen so low in the nineteenth century, due to the poor standard of nursing, etc., that the surgeons threw in their hand, said: "It was the Augean task of cleaning up these stables as far as Prussia was concerned that was put on Virchow's (1821–1902) shoulders, and with his usual thoroughness he proceeded to learn all he could about hospitals, so as to use his information to the best advantage. Above all he studied the history of German hospitals and gathered details that proved very interesting. He found that in the late Middle Ages—i.e., thirteenth and fourteenth centuries—there had been a marvellous development of hospitals throughout Germany. It is probable that practically every town of more than 5,000 inhabitants had a hospital. Virchow actually found that during the thirteenth century alone close on 100 hospitals had been founded in various parts of Germany. When he unearthed the efficient cause of the hospital organization he found it was to be traced to the movement set on foot and the initiative awakened by a single Pope, Innocent III (1198–1216). As Virchow said, it may be recognized and admitted that it was reserved for the Roman Catholic Church and for Pope Innocent III not only to open the course of Christian charity and mercy in all its fullness but also to guide the life-giving stream into every branch of human life in an ordered manner." He added for this reason alone, if for no other, the interest in this man and in his time will never die out.

Virchow found that these early German hospitals had been very well conducted. Indeed, when Pope Innocent III brought about their foundation through his encouragement and practically positive command (for every bishop on his visit *ad limina* was told that the Pope expected him to build a hospital in his diocese), the pontiff provided not only the model of a hospital in Rome but also the religious order, that of the Holy Ghost, to care for it. (Virchow was buried with Lutheran rites, but was known to be a professed agnostic.) In conclusion one would like to mention the very powerful letter of J. B. Oldham to *The Times* some weeks ago, which constrains one to hope for a British Virchow to bring our own hospitals up to date.—I am, etc.,

Rugby. G. L. GATELY.

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Unconscious Mental Activity?

SIR,—The letters of Dr. S. Sament and Dr. E. R. Banner (*Journal*, July 14, p. 103) seem to bring our understanding of general mental processes up to date. Dr. Sament is right when he claims that the advantage of the Pavlovian system of conditioned reflex psychology is that it is open to experimental check under controlled conditions, but he does not make it clear that this will inevitably lead to progression in a circle, inasmuch as the method itself is based on reflex activity of a specialized nature, and investigating reflexes by means of reflexes, while providing plenty of opportunities for permutations and combinations, is not going to advance independent knowledge of mental processes. Dr. Banner wants to hold on to his Freud, but under new names. A rose by any other name, gentlemen, will smell the same. I do sympathize with him, however, while feeling that he is not really offering us a solution so much as an elegant complication.

Can we now take one step forward into the untried? Both your correspondents concentrate entirely on the brain. But the source of the dynamic unconscious (I am proud to use this fine term myself) is the whole body. The brain is a specialized organ where the activity of the body is translated into conceptual thought. The origin of this conceptual thought is physical—the body, neither more nor less. Schopenhauer called the body "the immediate object of experience." We do not know anything that we do not experience, and we do not experience anything beyond the activity of our bodies. Freud drew attention to certain barriers to the full understanding of the body, and attempted to overcome them. In order to do this he gave names to certain fairly well defined states of dynamic equilibrium, best observed in the form of their development in the child. But once he had named these states they lost their dynamic (naming things is the curse of science) and became concepts

for playing with. Psycho-analysts have been playing with them ever since, but they are no worse for this than other investigators in all branches of human activity who do the same thing. This juggling with abstractions is one of the great barriers to the advance of real knowledge.

Let us develop techniques which will enable us to grasp in their elemental, dynamic form these body states and changes of states that constitute our experience. These techniques will be found to be those of the creative artist, the poet in particular. Finally, science does not solve problems, it presents them in a different light. The solution is entirely individual and personal. One overriding principle applies to all embodied experience, this letter included: it can only be accepted by each of you as an individual, and what you are able to accept depends on your own patterns of experience. Any increase of knowledge you obtain is increased knowledge of yourself.—I am, etc.,

Brailsford, Derbyshire. J. J. HAMILTON.

REFERENCE

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Idiopathic Cardiac Hypertrophy

SIR,—Drs. H. Altman and H. Stein are to be congratulated on their presentation of cases of idiopathic cardiac hypertrophy in African children (*Journal*, May 26, p. 1207). One is prompted, however, to renew a plea for the substitution of the term "idiopathic," in this as in other contexts, by the term "cryptogenic." This latter word, meaning "of hidden origin," implies that with increasing skill and knowledge the unknown aetiology may one day be revealed. Idiopathic, defined by the *Concise Oxford Dictionary* as descriptive of a disease not preceded or occasioned by another, is altogether too emphatic and conclusive.—I am, etc.,

Vanderbijl Park, South Africa. D. T. GLAUBER.

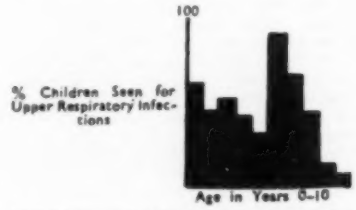
Is Tonsillectomy Necessary?

SIR,—Dr. Stuart Carne (*Journal*, July 7, p. 19) is to be congratulated on a remarkably interesting and simple piece of research in estimating the incidence of the three most common surgical procedures in a fairly representative group of young men in the R.A.F. His paper illustrates most admirably that valuable research can be carried out in the most simple fashion without elaborate machinery and techniques. I was particularly interested in his references to the incidence of tonsillectomy, as I had recently been examining this subject in my own practice.

The very high incidence of the operation in our country merits careful studies to try to decide whether in fact we are in the midst of some endemic disorder for which the tonsils and adenoids are responsible. The rate of around 33⅓% quoted by Dr. Carne is probably very representative of the country as a whole. It is not generally realized that, since the inception of the National Health Service, some 200,000 children are being admitted to our hospitals every year for the removal of their tonsils and/or adenoids, at a cost of around £2–3 million.

Are all these operations really necessary? To answer this question two matters require consideration and examination. First, we need to know what are the indications, or the reasons, for the operations, and, secondly, we need a well-planned clinical trial which would answer once and for all whether the operations serve any useful purpose. The second method is much the most difficult, since any such proposal seems to arouse great emotional reactions in our profession, as was evident last year when it was suggested that just such a trial be carried out in a hospital in Kent.

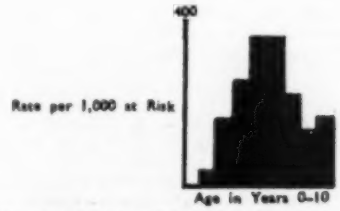
It is very possible, however, to examine the indications for the operation, and I have tried to do this on a very small scale. Undoubtedly the most frequent indications for the operation are persistent and recurrent upper respiratory infections in children between the ages of 4 and 8. It is assumed all too readily that the tonsils and adenoids are responsible for these infections and that their removal alters the course of the conditions. For the past few years I have kept records of the incidence of the various infections of the upper respiratory tract in children, and it is very suggestive that, whatever the true cause of them, they tend to run a characteristic natural course. Fig. 1 shows the percentage of children at risk aged 0–10 who are seen during each year of life for all forms of upper respiratory infections, including coughs, colds, and sore throats, but excluding bronchitis and pneumonias. Fig. 2 shows this incidence of true tonsillitis, and Fig. 3 (adapted from Glover[1]) shows the age incidence of tonsillectomy at the various years of life.



% Children seen for Upper Respiratory Infections

Age:	0	1	2	3	4	5	6	7	8	9
%	59	43	51	40	31	90	63	39	13	10

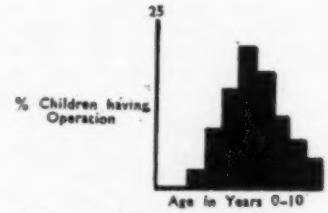
FIG. 1



Incidence of Acute Tonsillitis in Children Age 0–10 in Rate per 1,000 at Risk

Age:	0	1	2	3	4	5	6	7	8	9
‰	—	23	—	150	268	350	350	215	134	150

FIG. 2



Incidence of Tonsillectomy at Various Ages

Age:	0	1	2	3	4	5	6	7	8	9
%	—	—	2·5	8	15	20	17	11	7	4

FIG. 3

The extraordinary parallelism suggests that if we wait long enough most children would lose their coughs and colds and sore throats *spontaneously and naturally* without the interferences of the ear, nose, and throat surgeon. The peak at around 5 years, when the children start school, is highly characteristic, and so is the fall at 7–8 years of age. My own practice is to refer patients for operation only very infrequently, and my own tonsillectomy rates have been only 5% over the past 10 years—and in spite of this my child patients seem to grow up into healthy adolescents.—I am, etc.,

Beckenham, Kent. JOHN FRY.

REFERENCE

[1] Glover, J. A., *Proc. roy. Soc. Med.*, 1938, 31, 1219.

Rovsing's Sign

SIR,—Mr. W. W. Davey (*Journal*, July 7, p. 28) has done well to dispose of the hypothesis that gas can be pushed from sigmoid to caecum and thus cause pressure on an inflamed appendix.

Both Rovsing's and Blumberg's signs cause pain in the iliac fossa by reason of creating general abdominal commotion which is felt painfully in the region of the inflamed appendix. I have found a more refined method of doing this, which I describe as the cough reflex. The patient producing a cough of requisite strength notices at once the circumscribed stab of pain in the right iliac region. I have found it a most delicate and reliable test, not forthcoming in renal colic, salpingitis, or diverticulitis.—I am, etc.,

London, W.1. A. DICKSON WRIGHT.

SIR,—Mr. W. W. Davey deserves thanks for focusing attention on this sign (*Journal*, July 7, p. 28) and for indicating how rarely it is positive in genuine acute appendicitis.

I have found the sign even more unreliable, however, since it has not infrequently been present in the absence of any inflammatory condition in the caecal area. In particular is this true in patients who are subject to attacks of colonic distension, in which the abdomen becomes distended and there is tenderness over the whole length of the colon, which itself is full of gas. I have myself suffered from several attacks of this condition in past years and have noticed a very definite positive Rovsing's sign on myself, although there has never, at any time, been evidence of inflammatory disease. Since noticing this I have frequently applied the test on patients with similar attacks of colonic distension, and a positive response is by no means infrequent. The mechanism in such cases is presumably a stretching of the caecal wall by the increased pressure of gas, and, as Mr. Davey points out, it can only apply where the whole colon is filled with gas.

A sign which is not only often absent in the condition for which it is supposed to be diagnostic but is not infrequently present in the absence of the disease should undoubtedly be discarded.—I am, etc.,

Manchester. HERBERT HAXTON.

Maladjusted Children

SIR,—There are certain aspects of the maladjusted schoolchild problem which modern society and psychiatry alike have failed to tackle properly. Special schools are provided for educationally subnormal children, but what about the educationally supernormal children? What provision does the Education Act, 1944, make for them?

The outstanding lesson of this century has been the bitter fruits of educational failure in this direction—failure to socialize the ability of supernormal children. Take the classical example. I quote a 14-year-old schoolboy who played truant from school frequently and disliked school because he received no recognition and no "marks" for his potential abilities. He was often away from school with vague illness and mollycoddled by his mother. His father had died, so he lacked paternal guidance and help. He had one outstanding gift, that of crowd genius. One could hardly blame his own teachers for not recognizing him.

Combine the three factors: a craving for recognition by the school group (the first crowd the developing child faces alone), an inadequate father figure, and crowd genius, and what was the result? The second world war. The child was Hitler, a school failure trying to convince the school group of his abilities at a time when his schoolmates had settled down to their ordinary careers and ordinary family life. It is important for us to recognize that many politicians with "crowd hatreds" are simply schoolboys or girls with "school hatreds."

The question that must be asked is this: "Is the school adequate for the developing child as a social structure?" The diagnosis of maladjustment among schoolchildren is obviously very important, as all school doctors realize, but the social deficiencies need correcting first. The overcrowded bedroom, the overcrowded living-room, the overcrowded classroom, and the overcrowded curriculum all contribute their quota to the sum total of maladjustments.—I am, etc.,

Wolverhampton. GARETH R. DAVIES.

Cancer Education

SIR,—Mr. Lawrence Abel in his contribution to the first plenary session at Brighton (*Journal*, July 21, p. 150) stressed the importance of "early diagnosis" in lowering the mortality from cancer. Nobody can doubt that when the disease is treated while still in an early stage the prognosis is markedly improved. If cancer is a progressive disease starting locally, how can it be diagnosed in an "early stage" if the patient through ignorance delays six months to a year or more after noticing symptoms before seeking advice?

Three years ago the Ministry of Health wrote to every local health authority urging them to start schemes for cancer education of the public, but so far it seems that there has been little response. Such a scheme need not be costly, and could be shared by several local authorities joining to run a common scheme. If approved by the Ministry, I understand that half the money will be returned. Surely this is a sound investment for the nation. The public undoubtedly is anxious to obtain such information, and as a small piece of evidence to this is the fact that since Christmas I have booked 47 lectures to Women's Institutes in this area, and hope to give about 100 per year.—I am, etc.,

Oxford. MALCOLM DONALDSON.

Jig for Inserting Radon Seeds into Bladder

SIR,—The use of a perspex jig for the implantation of radon seeds into the bladder, as described by Mr. A. I. L. Maitland and Dr. T. Martin Young (*Journal*, July 14, p. 102) has been tried, and usually discarded as unsatisfactory, by most radiotherapists and surgeons experienced in treating bladder neoplasms. The curvatures of the bladder walls vary considerably from patient to patient and in different regions of the same bladder—viz., A.P. and lateral cystograms. At operation the tumour-bearing area of the bladder wall can be readily made to fit the "slightly concave jig" described, but it will certainly not maintain this position in the post-operative period. In the bladder it is virtually impossible consistently to obtain accurate distributions using radon seeds. This difficulty can be surmounted by the implantation of radioactive tantalum wire (^{182}Ta), as described by Smithers, Wallace, and Trott,[1] and Wallace, Stapleton, and Turner.[2] Using this technique the bladder wall is to some extent "splinted" by the tantalum lying within the muscularis; implanted radon seeds usually lie in the submucosa. Moreover, ^{182}Ta, having a relatively long half-life (111 days) period, is removed per urethram, thus affording accurate control over dosage; on the other hand, a radon seed implant is permanent and nothing can be done to offset inaccuracies.—I am, etc.,

London, S.W.3. NORMAN MACKAY.

REFERENCES

1 Smithers, D. W., Wallace, D. M., and Trott, N. G., *Therapeutic Use of Artificial Radio-Isotopes*, 1956, edited by P. F. Hahn, chapter 15. Wiley.

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Vaccination Complications

SIR,—I was very surprised to read in your leading article on the B.G.G. trials (*Journal*, February 25, p. 443) that the "complications of B.C.G. vaccinations appeared to be few *No special steps* were taken to discover them, but it was *presumed* that any serious complication would become known" (the italics are mine). It is extraordinary that the organizers should be so unscientific and deliberately ignore reactions following these new vaccines, at a time

when the public are advised to report their slightest ill-health and to avoid serious consequences.

Recently I encountered several instances where the mother was rightly alarmed, and at the time I was worried and puzzled by the "illnesses," although they may be classed officially as "minor" or "unrelated" in retrospect. One was a case of nephritis, which dated from a positive Mantoux test and took three weeks to settle. In another, fifteen days after a successful B.C.G. vaccination, a boy developed giddiness, drowsiness, and vomiting, with a pyrexia of 102° F. (38.9° C.) with no clinical signs—it lasted for three days. In a third, twelve days after his first B.C.G. vaccination, he developed epigastric pain, a temperature of 99° F. (37.2° C.), a tachycardia of 120 and multiple itchy papules. Four weeks later the temperature was still 98.6° F. (37° C.), and a few papules were still present ten weeks later. A diagnosis of B.C.G. bacteriaemia was provisionally made. The fourth case was of a baby of 19 months old who vomited 24 hours after her first poliomyelitis vaccination, with a temperature of 101° F. (38.3° C.)—subsequently she was drowsy, with heavy breathing and a streaming head-cold, which cleared up suddenly after 36 hours.

Such cases further confuse the difficult problems of recognizing the new virus and collagen diseases, the toxic effects of certain new drugs, and even a surgical emergency during cortisone therapy, with which the general practitioners are already faced. Unless a much closer follow-up of all cases is made, how can the organizers of the B.C.G. and polio vaccination campaigns conscientiously advise that the vaccines are "safe"? How can they be sure that a further vaccination will not produce a "serious complication," if a minor reaction occurred previously? Surely the medical profession, and the parents, are entitled to more than "presumptive" evidence before embarking on widespread vaccinations.—I am, etc.,

London, N.7. CHARLES O. KENNEDY.

Early Management of Poliomyelitis

SIR,—Having read the article "Early Management of Poliomyelitis," by Dr. E. G. Brewis (*Journal*, June 30, p. 1539), I was surprised at his remarks regarding the admission of patients to hospital, in which he advocates that, despite the diagnosis becoming more certain, in the event of the family doctor considering that the patient be admitted to hospital this course should be firmly resisted. The essential aim of treatment of anterior poliomyelitis is the *prevention*, if possible, of paralysis. In my opinion, anterior poliomyelitis of itself is not a disease to be dreaded, but the possible complication of involvement of the nervous system and subsequent paralysis is the reason why this disease must be treated with caution once it has been diagnosed.

To ensure that adequate measures are taken to prevent or minimize the complication of paralysis, admission to hospital, in my opinion, is strongly indicated except for very unusual circumstances, and this view is advocated by the Ministry of Health in their circular on poliomyelitis, dated July, 1954, in which, on page 7, it is stated that, "upon being informed of a case, the medical officer of health, or his representative, should visit the patient's home and help to get him into a suitably equipped hospital if this has not already been done."

In addition to my duties as medical officer of health, I am also fortunate to be in charge of a number of isolation beds at South Petherton Hospital, Somerset, and from January, 1947, to March, 1956, inclusive, 162 cases of anterior poliomyelitis, ranging from mild cases to cases of bulbar and respiratory paralysis and extensive limb paralysis, have been treated. The case fatality of these cases was one. I attribute in great part any success which might be claimed to the fact that practitioners in my area recognize the prophylactic value of adequate rest, and arrange with me for the patient's admission to hospital as soon as the case is diagnosed. I am convinced that the average parent is not capable of ensuring that the patient receives the same degree of rest as can be given in hospital. The disease, rightly or wrongly, occasions considerable distress and worry to parents, and this sense of worry is communicated to the patient. Frequently I have examined patients in their home when often they are restless and anxious, but on removal to hospital, where there is a calm air of reassurance, the patient's general condition is much improved.

Dr. Brewis, in his indications for admission, refers to extensive paralysis of limbs or back, weakness of the shoulder girdles, which may precede involvement of the diaphragm, difficulty in swallowing or breathing, and I maintain that if the admission of patients is delayed until such indications are present then the risk of grave paralysis or of death is very considerable. Further, to ask a family practitioner to retain such cases at home until the indications for admission, as put forward in the article, are present places an intolerable responsibility on the practitioner. In certain cases of this disease the time between onset of the disease and of paralysis or severe complications can be relatively very short, and, unless trained nurses are available who have the knowledge and experience to appreciate any deterioration of the patient's condition, nursing of cases at home could easily result in the patient's admission being so delayed that death is almost inevitable. The policy of refusing admission could be a factor in the fatality rate which Dr. Brewis gives in his article, and to which he refers as making "lamentable reading."

Case histories of five patients, illustrating the necessity of cases being nursed in hospital, are available, but space does not permit them to be printed.

In conclusion, might I observe that two blood samples in cases, or suspected cases, of anterior poliomyelitis in children aged 2–10 years are now requested for diagnostic purposes? The use of a surface anaesthetic such as "xylotox-extra" (lignocaine with methocaine hydrochloride) renders the operation almost painless and greatly facilitates the taking of blood, particularly of the second sample.—I am, etc.,

Yeovil. P. P. FOX.

Living on a Pension To-day

SIR,—In working on a book on the above, I feel that one or two typical budgets from retired doctors would be helpful and illuminating. Any figures given me would, of course, be used under complete anonymity, only the definition of "a doctor" or "medical specialist" being used.

The heads under which I am listing annual expenditure are rent or capital on loan, rates, household repairs and maintenance, food, clothes, domestic help of any type, tobacco, drinks, entertainment, car (if any), holidays, insurance, medical incidentals. I am particularly anxious for budgets on the £250, £350, £450, £550 a year level, but one or two about £1,000–£1,250 would be equally welcome.

To senders of budgets used I shall post a proof of the chapter on budgets, so that they may profit by the exchange.—I am, etc.,

Windrush Cottage,
Fairlight,
Near Hastings, Sussex. CECIL CHISHOLM.

Unusual Injury

SIR,—An unusual injury came to my notice which I thought might be of some general interest.

My patient was making some adjustment which involved groping with his left hand behind the dashboard of his car, during which the metal strap of his wrist watch shorted one of the ammeter connexions to earth. The heat generated was apparently sufficient to melt one of the links and he sustained a second-degree burn some ½ in. (1.27 cm.) by 1 in. (2.5 cm.) on his wrist.

This danger in low-voltage circuits may not be generally appreciated.—I am, etc.,

Fleet, Hants. C. R. TILLY.

Obituary

W. POINTON DICK, M.R.C.S., L.R.C.P.

Dr. W. Pointon Dick, adviser to the Government of the Gold Coast on the prevention, control, and treatment of tuberculosis, died suddenly in Accra on July 8, after a few days' illness, at the age of 51. Born on May 28, 1905, at Ealing, where his father, Dr. W. B. Dick, was in practice, William Pointon Dick was educated at Brighton College and entered the medical school of St. Thomas's Hospital in 1927. His student career was calamitously interrupted by five years of ill-health, culminating in a major chest operation, which left him with some degree of permanent disability; yet with characteristic courage and determination he went on to qualify M.R.C.S., L.R.C.P. in 1941.

After a resident post at Hereford General Hospital, Pointon Dick joined the medical staff at Harefield Sanatorium. He went from there to the Ealing Chest Clinic, and in 1943 took charge of one of the first mass miniature radiography units to operate in this country. His work in this field soon bore the mark of an original and inquiring mind. He was able to show how repeated surveys of a given population group can be used to reduce the local incidence of pulmonary tuberculosis to a very low level. His critical studies on the tuberculin patch test did much to establish a standard technique at a time when this test was in general use. In 1951 he was seconded to the Medical Research Council and as an attached member of its Tuberculosis Research Unit took part in the earlier stages of the B.C.G. vaccination trial, results of which have only recently been published. A year later he was appointed to the Government of the Gold Coast as a specialist under the Colonial Office, to investigate and advise on tuberculosis control in that country.

It was in Africa that Pointon Dick can be said to have found his true vocation. The climate suited him and his health improved, so that he was able to bring the full resources of his clinical and epidemiological experience to bear on the formidable problems that confronted him. What measure of success he achieved, in the short space of time that was afforded him, vital statistics will certainly reflect and work to be published may yet illuminate. It is already obvious that a sound basis has been laid under his imaginative guidance for his successors to build on. His loss will be mourned, not less by those in West Africa who owe him perhaps more than they know, than by his many friends in this country, whose deep sympathy will go to the wife and young daughter that he leaves.—B. C. T.

Mr. J. B. DAVID, honorary secretary of the Gold Coast Branch of the British Medical Association, writes: On any of the roads linking the scattered towns in this widespread tropical country one might come across Pointon driving his magnificent car at breakneck speed but with superb skill. He would be on one of his innumerable journeys to supervise the treatment of tuberculosis. In his younger days a well-known racing driver, he still retained unimpaired the ability to manage fast cars at speed. Also in his younger days he had conquered the scourge of tuberculosis in himself, and had come out to the Gold Coast to organize a service to limit the ravages of the disease among the inhabitants. During his time here he had endeared himself to all, both British and Africans, and had come to love the country where he worked. With very little fuss, he had succeeded in building the foundations of a service which, if he had been allowed to live, had all the promise of unique success in the future. His experience and advice were available freely and, by reason of his prodigious journeys, to a very wide area, and it was somewhere on the last of these tours that he picked up the virus which ended his life. His work here had only just started, but its scope is shown by the concourse of all sorts of people who attended his funeral, Africans, high and low, British, friends, and patients. In stature he was a small man, but great in spirit, and his passing will leave a void here which will not easily be filled.

R. M. DOWDESWELL, M.D.

The sudden and untimely death on May 31 of Dr. Roland Dowdeswell, occurring as it did on the eve of his taking up a new laboratory appointment in Rhodesia, has been a great grief to his many friends. He was 54 years of age.

Roland Melville Dowdeswell was born in Bengal on October 23, 1901, and was educated at St. Paul's School and Emmanuel College, Cambridge. He went on to St. Thomas's Hospital for his clinical training, qualifying M.R.C.S., L.R.C.P. in 1928. He took the Cambridge degree of B.Chir. in 1932 and proceeded to M.D. six years later. In 1930 he obtained the certificate of the London School of Hygiene and Tropical Medicine and entered the Colonial Medical Service (now Her Majesty's Oversea Civil Service), and worked for several years as a medical officer in the Northern Frontier and Kavirondo provinces of Kenya. His particular interest was in bacteriology, and, in recognition of his ability in this field of medicine, he was in due course posted as bacteriologist at the Medical Research Laboratory, Nairobi. In 1948 he was appointed deputy director of laboratory services in Kenya, from which post he retired in 1950. He was honorary secretary of the Kenya Branch of the British Medical Association in 1939–40. After leaving the Colonial Medical Service he held appointments successively as visiting professor of bacteriology in the University of Beirut, and, since April of last year, as director of laboratories at the El Calioub Public Health Demonstration Project in Egypt under the World Health Organization. His contributions to medical literature included articles on typhoid agglutinins in the native population (1937) and schistosomiasis in the Kavirondo district of Kenya Colony (1938) in the *Transactions of the Royal Society of Tropical Medicine*, and a description of an outbreak of dysentery in a school in the *Lebanese Medical Journal* in 1953. He is survived by his widow, formerly Miss Sheila Patterson, whom he married in 1941, and three sons.

J. C. C. writes: Roland Dowdeswell's talents were varied and his interests were by no means confined to his professional work. He was an enthusiastic tennis and squash-rackets player, a distinguished chess player, and, perhaps most surprisingly, an intrepid big-game hunter. But above all there remains to refer, even though it be inadequately, to his unique personality, his critical and questing spirit. It is perhaps this which will be of the most enduring value, at least for those who knew him well and who cannot fail to have been affected by its influence. The keynote of his character was an all-pervading integrity, a sustained endeavour not only to think out basic principles of living but to live according to those principles. Such courageous sincerity is rare, but, if Bernard Shaw's dictum that "hardly any of us have ethical energy enough for more than one really inflexible point of honour" is true, then Roland Dowdeswell was one of those exceptional folk who had that sort of energy, and he lived to prove that living on those lines is not impossible.

R. SCOT SKIRVING, M.B., F.R.A.C.P., F.R.A.C.S.

Dr. R. Scot Skirving died peacefully at his home at Sydney, New South Wales, on July 15. He was in his 97th year, and, although the news of his death naturally caused no surprise, it came as a wrench to some of his friends in whose minds Scot Skirving was implanted as an age-long tradition. They had invested him with a cloak of permanence, and could hardly believe that he was no longer with them. On his 90th birthday he wrote of "the many kind references to my antiquity and persistence in living," and continued, "I am absurdly old, and I think with shame how little I've done with my long life." Therein lay his modesty: he might well have been proud of his achievement.

A member of a well-known Haddington family, Robert Scot Skirving graduated M.B., C.M., with honours, from Edinburgh University in 1881. He was elected a Fellow of the Royal Australasian College of Surgeons in 1936 and a founder Fellow of the Royal Australasian College of Physicians two years later. After graduation he was house-physician to Sir Douglas Maclagan, and then house-surgeon to Professor James Spence at Edinburgh Royal Infirmary. Scot Skirving's younger brother, "Archie," who died in 1930, became a well-known Edinburgh surgeon, but Robert, though he would have succeeded anywhere, chose to go to Australia, then known as "the distant colony," in 1883. "Though I love it still," he wrote recently, "Sydney is no longer the jolly little friendly town of Victorian days." But, like Robert Louis Stevenson in distant Samoa, his thoughts ever returned to the scene of his student life. Always a lively correspondent, he maintained a close touch with Edinburgh University, of which he was the oldest living graduate, and in recent years he was especially pleased to be visited by the Principal, Sir Edward Appleton, Professor D. M. Dunlop, and Dr. Douglas Guthrie. Many will remember how he recalled the past and told stories in his own delightful and witty fashion, illuminated by apt quotations from the poets, and especially from the Scriptures. He knew his Bible well, having lived in an age when the Bible was regarded as a textbook for every discipline.

It cannot be said that Scot Skirving ever retired from practice: even in his later years his services were in demand. His was a general practice in every sense of the term, and earlier in his career he had actually officiated, at the same time, as physician to one large Sydney hospital and as surgeon to another. He welcomed many British colleagues to Australia when the British Medical Association met at Melbourne in 1935. I had the pleasure of hearing him give a remarkable address at the postgraduate medical school at Sydney in 1953. It was entitled "Pneumonia, Then and Now." In a clear and audible voice the nonagenarian lecturer recalled the changes which he had seen since the time when lobar pneumonia was a common and devastating disease. Few of his hearers could recall such an age. The cheering which followed the lecture continued for several minutes. His younger friends—and to him anyone under 80 years was a "mere adolescent"—will not soon forget this grand old man whose charm of manner and whose gift for friendship endeared him to so many. —D. G.

We are indebted to Sir ROBERT HUTCHISON for the following appreciation: Robert Scot Skirving, I believe, was the oldest Edinburgh medical graduate, as well as the doyen of the profession in Australia. I met him only once in the flesh, when the British Medical Association held its Annual Meeting at Melbourne in 1935, although I had known other members of his family since my early life: but we struck up a friendship which led to our exchanging letters every few months since that time, and his last letter to me is dated June 28. In his early years Scot Skirving went to sea in sailing ships, but left the sea for medicine and graduated at Edinburgh in 1881. He settled in Sydney, which he had visited on one of his voyages, and soon acquired a high reputation as a physician both in hospital and in private practice. He was very highly esteemed in his own city, and doctors visiting Sydney from the United Kingdom never failed to look him up. He told me in his last letter that not long ago he had met Russell Brain and Lionel Whitby in this way. Since the death of his wife a few years ago he had been rather lonely, and suffered also from much impairment of sight, which was a great grief to him, as he was fond of reading and a man of considerable culture. Altogether, Scot Skirving was a rather remarkable man.

HERMON WHITTAKER, M.R.C.P.

Dr. Hermon Whittaker died suddenly on July 18 at the age of 45. Hermon Whittaker was born on October 18, 1910, and developed severe diabetes in 1926 at the age of 15. On leaving his school in Yorkshire he became an assistant to a pharmacist, who thought so poorly of diabetics that he advised him to change from this career. Later he was guided into medicine and qualified M.R.C.S., L.R.C.P. from King's College Hospital in 1941, becoming an M.R.C.P. in 1944. His life as a doctor was devoted to the treatment of diabetics. He was first assistant in the diabetic department at King's College Hospital for many years and was in charge of the children's clinic there. Later, as a consultant, he developed an ever-growing diabetic clinic at Queen Mary's Hospital for the East End. He was the chief adviser and stimulator in the work of the Diabetic Association for diabetic children. Among other things he pressed for the provision of residential homes and schools for neglected diabetic children and for holiday camps for diabetic children. He never spared himself, nor did he allow his own insulin life ever to interfere with the task in hand. His medical work and place will be difficult to fill, as his medical colleagues know. But he will be missed even still more by the thousands of diabetics he handled as if their lives were more important than his. In his quiet competent way he engendered a personal trust and love which will be a sad loss to them and to his co-workers. He leaves a widow and two sons.

Dr. WILFRID OAKLEY writes: As Dr. Whittaker worked for so long with me in the diabetic department at King's, I would like to add a few words of appreciation of his character and work. His wide knowledge of the management of diabetes was derived from personal experience and clinical observation rather than from scientific journals, and I always felt that he was even more interested in his patients than in their diseases. This approach to the problems of his fellow-diabetics was an example both to students and to colleagues, and was the underlying cause of his popularity with his patients. Quite apart, however, from professional ability, Hermon Whittaker will be remembered by his friends for his quiet sense of humour, his fairness, and his courage; he never thought too highly of life or death, which was perhaps why he faced the latter with the same fearlessness with which he lived the former. Diabetic children owe him a debt which he would never have wished repaid.

Miss MARTHA MARQUARDT

The obituary of Miss Martha Marquardt was printed in the *Journal* of July 21 (p. 181).

Dr. HARRY SUGARÉ writes: May I very humbly follow Sir Henry Dale and write my personal tribute to the late Miss Martha Marquardt, who had been personal secretary to Paul Ehrlich from 1902 until his premature death in 1915? Although, as Sir Henry rightly points out, her book *Paul Ehrlich*, written in English and published by Heinemann in 1949, "never appeared . . . to have the spontaneity and lively charm of the shorter character-sketch which she had written in German 25 years earlier"—namely, *Paul Ehrlich als Mensch und Arbeiter*, yet it is a mine of most interesting information for a good understanding of Ehrlich's personal life, traits, and his scientific career for those readers who are not familiar with the German language. Martha Marquardt, as well as Professor Carl Browning, emeritus professor of bacteriology in the University of Glasgow, were of considerable help to me by their long correspondence when I prepared a paper on the life and work of Paul Ehrlich delivered on the very day of the centenary of the birth of Paul Ehrlich, March 14, 1954, to the Leeds Jewish Medical Society, with Professor C. L. Oakley, Brotherton professor of bacteriology in the University of Leeds, in the chair. I value such correspondence most highly. In the preparation of this paper I received much help from Martha Marquardt. I look forward with great interest to the publication of the first volume of the collected edition of the scientific writings of Ehrlich.

Mr. T. G. CROMBIE, surgical registrar at the Queen Alexandra Hospital, Cosham, Portsmouth, under the South-west Metropolitan Regional Hospital Board, died on June 29 at the age of 33. Thomas Gilmour Crombie was born on November 3, 1922, and received his medical education at Edinburgh University, graduating M.B., Ch.B. in 1944, when he was awarded the Mouat Scholarship in the practice of physic. After graduation he held appointments at the Walsall General Hospital and the country branch of the Royal National Orthopaedic Hospital at Stanmore, and then served in the R.A.M.C. from 1945 to 1947. Admitted F.R.C.S. in 1950, two years later he was appointed surgical registrar at Portsmouth under Mr. R. T. Campbell, first at St. Mary's Hospital and latterly at the Queen Alexandra Hospital.

R. F. R. writes: The untimely death of T. G. Crombie has caused the deepest grief to those of us who were privileged to be his closest friends. Crombie was a man of sterling character and forceful personality, who concealed beneath a somewhat cynical exterior an unfailing kindliness of heart and devotion to his ideals. By nature outspoken and critical, his honesty of purpose was always apparent and deeply respected even by those who found themselves in disagreement with him. He was a brilliant conversationalist who never missed a point in debate, and whose shafts of wit enlivened any company in which he happened to be present. A week-end spent at his home in Portsmouth was always memorable for—among other things—the humour and laughter which were inevitably associated with his charm. As an undergraduate at the University of Edinburgh, Crombie achieved the uncommon distinction of playing in the University fifteen during his first term. A Scottish cap was confidently forecast for him, but characteristically, having decided that he could not afford the time from his studies, he gave up the game completely at the end of his first year. Eighteen months ago he developed the first symptoms of the illness which was eventually to prove fatal. He was well aware of the probable outcome, but his outstanding courage was more than equal to the occasion. With strength of character undimmed, he carried on to the end. To his wife, who bravely tended him during his last days, and to his young son, we extend our deepest sympathy.

Mr. R. T. CAMPBELL writes: Thomas Gilmour Crombie bore with characteristic grit and determination the discomfort and anxiety of two major operations and the culmination of a long illness which he knew full well could have only one end. His sterling qualities, however, remained with him to the last, and his passing is mourned deeply by his many medical and nursing friends, and not least by the many patients who benefited from his kindness and skill.

Dr. A. J. H. ILES, consulting radiologist to the Taunton and Somerset Hospital, died in hospital at Taunton on July 3, nine days before his 78th birthday. Born at Taunton on July 12, 1878, the son of Dr. A. R. Iles, Alfred John Hopkinson Iles was educated at Repton School and at St. Thomas's Hospital. His medical training was interrupted by service in the South African War, during which, as a sergeant, he was responsible for the *x*-ray equipment for the whole Army in South Africa. The entire equipment, he used to say, was kept in a cellar and hardly used. On demobilization he returned to his medical studies and qualified M.R.C.S., L.R.C.P. in 1907. After qualification he held the appointments of assistant lecturer in surgery, demonstrator in physiology, and clinical assistant in the *x*-ray and electrical department at St. Thomas's before joining his father in general practice at Taunton, taking with him his interest in radiology. This interest led to his appointment as the first honorary radiologist to the Taunton and Somerset Hospital, a post which he held until his retirement in 1938. In the following year he was elected a Fellow of the Faculty of Radiologists. In addition to radiology, Dr. Iles was intensely interested in the use of electricity and massage in the treatment of injuries. He had a natural gift for inventing gadgets, and this gift he applied in many ways to his work and his hobbies. The outbreak of the first world war in 1914 saw him back in service with the R.A.M.C. The war produced a rapid advance in electrical and massage treatment. His abilities were quickly recognized, and he was asked to form and control the electrotherapy and massage centre in the medical base depot at Etaples. After the war he gradually gave up general practice and concentrated on radiology and physiotherapy. A member of the British Medical Association for nearly fifty years, he was honorary secretary of the old West Somerset Branch from 1922 to 1924 and president of the Branch in 1924–5. In 1932 the Branch became the West Somerset Division of the new Bath, Bristol, and Somerset Branch, and he was chairman of the Division in 1934–5 and president of the Branch in 1937–8. When the Association held its Annual Meeting at Cardiff in 1928 he acted as one of the honorary secretaries of the Section of Radiology and Physio-Therapeutics. For many years he was assistant county controller and director of the Somerset branch of the British Red Cross Society. In 1937 he was elected mayor of Taunton, during which year King George V visited Taunton, the first visit of a reigning monarch for 400 years. He acted as deputy mayor from 1938 to 1945. A staunch freemason, Dr. Iles was granted many masonic honours, and at the time of his death was provincial grand master of the South-western counties of England in the Royal Order of Scotland. He married Miss Florence M. Pink in 1906. His wife died in 1950; there were no children of the marriage.—L. P. M.

Dr. REUBEN LIPMAN died at his home in Liverpool on July 14 after a long and distressing illness, bravely borne. The eldest of seven children, Reuben Lipman was born at Leeds on October 23, 1900. His abilities carried him to high school and subsequently to Leeds University. His preparation for medicine was thorough. After taking an honours B.Sc. in physiology in 1921, he proceeded to the M.Sc. in the following year and to his medical degree in 1925. Soon after graduation he entered general practice in Leeds, and a few years later settled in the Aintree district of Liverpool. With this practice he remained connected up to the time of his death. During his student days Lipman had become interested in psycho-analysis, and it was in this

specialty that he later built up a private consulting practice. In 1934 Dr. Lipman was appointed to the staff of the Liverpool Psychiatric Clinic, then a voluntary institution, and continued his work there when, in 1948, the clinic was transferred under the National Health Service. His therapeutic skill was in constant demand. Though he remained a firm adherent and a clear exponent of psycho-analytic principles, he spurned no form of psychotherapy which he considered would be of help to the individual patient. This tolerance and breadth of outlook much increased the range of his powers and rendered him virtually irreplaceable on Merseyside. For several years he was a valued member of the South Liverpool Hospital Management Committee. It could be said that Reuben Lipman entered into life at many points, often with distinction, always with infectious enthusiasm: military training, athletics, games, swimming, boxing, painting, photography, and the pleasures of the countryside—all enriched his experience; and up to the time of his illness he took every opportunity he could for study abroad. He was an active member of the British Medical Association, the Royal Medico-Psychological Association, and the Liverpool Medical Institution. Among the qualities we shall miss most were the warm-hearted kindness of his nature and his staunch and loyal friendship. Many owe much to his generosity of spirit and to his unobtrusive practical help, and throughout his professional life one could rely on his unfailing presence in response to a difficult situation. At those times his insight and self-command enabled him to intervene without trace of self-assertion, yet powerfully and constructively, disarming factious opposition. The setbacks of his last illness found his courage unquenchable. He passes from our sight, untimely as it seems, and at the height of his powers: he is mourned by numberless patients, friends, and colleagues.

In 1928 Dr. Lipman married Miss Lili Raphael, of Darlington, who survives him, together with their two sons and two daughters—dental surgeon, research physicist, doctor, and student of dentistry, respectively; and it is to them that our thoughts and sympathies turn.—S. B. H.

Dr. J. O. W. DICK died from poliomyelitis at Oxford on July 14 at the age of 39. James Orford Wallace Dick was born on November 6, 1916, the son of the late Mr. J. R. Dick, F.R.C.S.Ed., of Scarborough. Educated at Wellington College and Trinity Hall, Cambridge, where he took his B.A. in 1937, he completed his medical training at the London Hospital, obtaining the degrees of M.B., B.Chir. in 1941. After graduation he held appointments at the London Hospital and Haymeads Hospital, Bishop's Stortford, before entering the R.A.M.C. in 1942. He volunteered for the Airborne Division and was with a glider battalion in France and Germany. For a time he held the appointment of deputy assistant director of medical services, and later was in command of a field ambulance in Norway and Greece, with the rank of lieutenant-colonel. After the war he spent another year at the London Hospital, and in 1948 settled in practice at Abingdon, Berkshire. He is survived by his widow, formerly Miss Mary Sykes, whom he married in 1943, and four children. His first daughter died in 1953.

J. R. E. writes: Orford Dick was a man of many interests who, throughout his all too short life, refrained from following a few to the exclusion of others. A natural athlete, he played games for enjoyment and recreation, not as an end in themselves. It was fitting that he should elect to enter general practice, in which he at once gained the confidence and affection of his patients. He set himself a high standard in everything he did. An integrity of purpose which in a lesser man might have had unhappy results only enhanced Orford Dick's popularity, and his love of life and his ready laugh made him a delightful companion. Much of his happiness was derived from his home life, for his marriage was a blessed one. His patients have lost a highly respected doctor and his fellow-practitioners a charming and loyal colleague. All who knew him have suffered keenly by his premature death.

Medical Notes in Parliament

Fluoridation of Water Supplies

Dr. DONALD JOHNSON (Carlisle, Con.) asked the Minister of Health on July 20 how he assessed the required dose of fluoride to be added to water in experimental fluoridation areas; and to what extent he had followed the recommendation of the Report of the United Kingdom Mission to North America on the best way of determining the present level of ingestion of fluoride in human beings. Mr. R. TURTON said that the right level for the fluoridation of water in the studies in this country was determined as a result of investigations into the effects of water which naturally contained fluoride, and in the light of over 10 years of experience in other countries. It had been found that at one part per million a very high degree of protection against caries was given, but the mottling caused by higher concentrations was avoided. As regards the mission's suggestion for a survey of fluoride excretion, a pilot investigation confirmed the results obtained in other countries.

Strontium on Welsh Mountains

Mr. TUDOR WATKINS (Brecon and Radnor, Lab.) asked the Lord Privy Seal what effects strontium had had on Welsh mountain sheep. Major G. LLOYD-GEORGE, the Home Secretary, who replied on July 25, said that, in studying the distribution of radioactivity arising from fall-out, measurements had been made of the strontium-90 associated with the calcium in various biological materials. Among the representative samples of sheep bones examined, a few from very localized mountain areas in Wales had shown higher values than those from other areas. Even so, the levels were too low to have any detectable effects on the sheep.

French Ban on Pharmaceutical Goods

Dr. REGINALD BENNETT (Gosport and Fareham, Con.) questioned the President of the Board of Trade about recent limitations placed on the importation into France of finished pharmaceutical products from England, and what reciprocal action he would take. Mr. PETER THORNEYCROFT stated on July 26 that a ban was imposed last January on imports into France of certain made-up pharmaceutical goods. After consultation with the French authorities he was satisfied that the ban was imposed for reasons of public health and safety, and not as a deliberately protective or discriminatory measure. The question of reciprocal action did not therefore arise. He was, however, considering an approach to the French authorities to find out by what means imports from the United Kingdom could be brought within their health requirements.

Chiropody Associations

Mr. SOMERVILLE HASTINGS (Barking, Lab.) asked the Minister of Labour on July 26 whether his attention had been called to a statement in *Careers Guide*, April, 1956, an official publication of his department, that the only training accepted as leading to a suitable qualification for inclusion in the British Register of Medical Auxiliaries was that approved by the Society of Chiropodists; whether he was also aware that the Institute of Chiropodists, formerly the Joint Council, and the Society of Chiropodists were mentioned as appropriate bodies in the Health Service Medical Auxiliaries Regulation, 1954, and that the qualifications awarded by both bodies were generally regarded as of equal value; and what action he proposed to correct this misstatement. Mr. ROBERT CARR, the Parliamentary Secretary, replied that the statement in the *Guide* was strictly correct. The complicated position in this profession might, however, have been more fully explained, and he would consider how best this information could be conveyed to the schools interested. Mr. HASTINGS: The

Minister of Labour, when Minister of Health, decided after careful study that these two bodies were of equal esteem. How comes it that as Minister of Labour he takes a different view? Mr. CARR replied that the Minister did not take any different view. The information in the booklet was strictly correct, but he would see what he could do to have it amplified. Mr. HASTINGS said it was stated in the booklet that only the Society of Chiropodists was an approved body, whereas, as was made clear in the statement of the Ministry of Health, both these bodies were regarded as of equal esteem. How could that be? Mr. CARR thought this was one of the few cases where they could both be largely right. The British register was maintained by the B.M.A., which recognized only the Society.

East Africa Inquiry

Mr. SOMERVILLE HASTINGS asked the Secretary of State for the Colonies on July 25 what he was doing to implement the recommendation of the East African Royal Commission that a medical commission should be sent out to make recommendations on the control of endemic and epidemic disease and preventive medicine generally. Mr. LENNOX-BOYD replied that a committee, under the chairmanship of Professor A. C. Frazer, of Birmingham University, had investigated the medical and health services in Uganda and its report would shortly be debated in the Uganda Legislative Council. The Governments of Kenya and Tanganyika saw no present need for a visit by an expert body. In Tanganyika a draft plan for the development of the medical services over the period 1956–61 was before the Legislative Council. He shared the view of the East African Governments that in these circumstances the recommendation referred to need not be followed up.

The Pay Claim

Mr. C. OSBORNE (Louth, Con.) asked the Minister of Health on July 30 what were the average net earnings of a general medical practitioner in the Health Service; what they were in 1939; and by what percentage they had risen. Mr. R. TURTON replied that the present average net earnings of a general medical practitioner after meeting his practice expenses were £2,222 a year. The corresponding figure for 1939 was £938, and the percentage increase was therefore 136.9. Mr. OSBORNE asked if the Minister would agree that, as the value of money had fallen by one-third since 1939, doctors were no better off; and that those working in rural areas who were on tap seven days a week fully earned what they got. Mr. TURTON.—I agree that both those working in rural areas and in urban areas deserve well of the community. Lieut.-Col. M. LIPTON (Brixton, Lab.).—But for the difficult economic circumstances of the country the doctors would have a good case for an increase. Mr. TURTON.—My reply to the claim was on the basis that in present circumstances it would not be right to give consideration to a claim for a general increase in remuneration. Dr. EDITH SUMMERSKILL (Warrington, Lab.).—How does the Minister reconcile that with the recommendations of the Spens Committee? Mr. TURTON.—The committee did not lay down any contractual obligation. They based their recommendations on what should be the level at which doctors entered the Service.

Danger in a Theatre

Mr. J. J. ASTOR (Plymouth, Sutton, Con.) asked the Minister of Health if he would make a statement on the recent death of a patient in the South Devon and East Cornwall Hospital, Greenbank, Plymouth, which was found due to infection caused by inadequate and dangerous conditions in the operating theatre. Mr. TURTON.—I have asked the regional hospital board for a full report on this case.

Mr. ASTOR asked what representations had been received by the South-west Regional Hospital Board over the last eight years from the hospital management committee and medical staff about the inadequate and dangerous conditions in the operating theatre at the South Devon and East Cornwall Hospital. Mr. TURTON stated that the board received five representations from the hospital management committee about the condition of this operating theatre; the earliest was in April, 1950, and the most recent in January, 1955. The committee, however, recommended higher priority for two other capital schemes in their group. Mr. ASTOR asked if, in view of these unfortunate circumstances, the Minister would consider in similar cases intervening when medical opinion was in conflict with the hospital management committee. Had the management committee published the reason why it did not give priority to the rebuilding of this theatre? Mr. TURTON replied that it was clear that the committee took the view that the maternity unit was even worse than the operating theatre. He had now received a proposal for a new operating theatre. It was submitted on June 19, and he had approved the preparation of sketch plans on July 23. That work would go forward in due course.

Tranquillizer Drugs

Mr. BLENKINSOP asked the Minister whether he would give guidance in his *Notes to Prescribers* to general practitioners as to the cost of tranquillizer drugs. Miss PAT HORNSBY-SMITH, the Parliamentary Secretary, said the Minister would certainly consider whether there was any information which general practitioners might find useful if circulated to them in this way. Mr. BLENKINSOP asked that the Ministry should encourage a campaign to make clear that these drugs, which might cost up to 35s. for a bottle of 50, were of very doubtful value. Miss HORNSBY-SMITH replied that *Notes to Prescribers* were supervised by an editorial committee on which the B.M.A. was represented. She agreed that this might be something they could consider, but it was only recently that these drugs had been introduced. Dr. EDITH SUMMERSKILL (Warrington, Lab.) said it was because they had been recently introduced that they were being widely advertised among doctors.

Ophthalmic Tests.—Under the supplementary ophthalmic services about 415,200 tests were made in 1954 in the area of the London executive council, and 443,200 in 1955. Spectacles were prescribed in about 359,600 cases in 1954, and in 385,100 cases in 1955.

Research on Genetics.—During the financial year 1956–7 expenditure by the Medical Research Council on research on genetics is estimated at approximately £70,000.

Medico-Legal

LIBEL ACTION SETTLED

The libel action[1] brought by the Royal College of Obstetricians and Gynaecologists against Associated Newspapers Ltd., and others, in respect of an article which appeared in the *Daily Sketch* on January 4, 1956, was settled before Mr. Justice Pearce on July 25.

Mr. H. Milmo for the plaintiffs said that the article entitled "Must Our Babies be Born in Pain?", published under the name of Dr. Jon Collen, asserted that the Royal College had acted in a shameful manner towards a medical practitioner, who it was stated was the man primarily responsible for the new look in obstetrics, that they had prevented him from working in any hospital in the country, and had caused him to be harried and cold-shouldered by the medical profession. He said that this grave attack upon the honour and propriety of the Royal College was utterly false and without foundation. The defendants had apologized, published a note in the *Daily Sketch* of January 6 regretting the wording of the article, and agreed to pay the Royal College substantial damages, in addition to their taxed costs of these proceedings. Mr. N. Faulks for the defendants said he desired to associate himself with everything which Mr. Milmo had said. He expressed the defendants' sincere apologies. Mr. Milmo asked leave to withdraw the record of the action, which Mr. Justice Pearce granted.

The damages are understood to have amounted to £600.

[1] *British Medical Journal*, January 21, 1956, p. 176.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examinations indicated:

FINAL M.B.—*Part II*: [1]R. E. C. Altounyan, [1]F. K. Amarquaye, [2]G. M. D. Archer, [1,2]G. W. Arthur, [1,2]K. D. Austin, [1,2]J. R. C. Bain, [2]R. T. Barnie-Adshead, [1,2]P. C. Barrington, [2]J. R. Batchelor, [1,2]D. E. R. Bateman, [1,2]M. F. Beard, [1]C. F. N. Bennett, [1,2]P. S. Bentlif, [1,2]J. A. Bessell, [1,2]P. C. Bewes, [2]A. G. S. Bloomer, [2]A. T. Brain, [1,2]E. M. Bray, [1,2]G. Brocklehurst, [1,2]A. C. Brown, [1]T. Buchan, [2]L. E. Bush, [2]H. C. I. Bywater, [1,2]J. M. Cairns, [1,2]D. Cameron, [1]R. Carlisle, [2]J. V. F. Catto, [1,2]D. A. Chamberlain, [1]C. Cohen, [1,2]G. Cohen, [1,2]M. R. Colwill, [2]F. G. Cooper, [1,2]V. Cope, [1,2]J. R. M. Copeland, [1,2]P. W. M. Copeman, [1,2]C. C. Cory, [1,2]J. K. Dauncey, [2]H. J. Davies, [2]J. E. Davies, [2]A. G. Dawrant, [1]J. K. Dewhurst, [2]St. J. Dowling, [1,2]D. W. Downham, [1,2]M. H. M. Dykes, [2]D. J. El Kabir, [1,2]S. G. Elkington, [2]D. M. Essenhigh, [2]T. G. Evans, [2]D. J. Fairclough, [1,2]G. W. M. Faris, [1,2]C. J. Farrer, [2]B. W. K. Fayle, [1,2]M. L. Fenner, [1]A. C. Fernando, [2]S. J. M. Fernando, [1,2]C. A. Fox, [2]T. A. Fox, [1]P. Francis, [1,2]G. R. Fraser, [1,2]M. A. R. Freeman, [2]M. J. P. Furniss, [2]G. B. Gasson, [1,2]J. Gaston, [1]J. H. Gervis, [1,2]J. M. D. Gibson, [1,2]W. R. Gibson, [1,2]D. A. Gilchrist, [1,2]A. D. R. Goodliffe, [1]N. O. A. Gracey, [2]P. F. Gray, [1,2]F. B. Grossmark, [1]B. H. Grundy, [1,2]A. L. Gunn, [1,2]C. C. Gunn, [1]T. B. Hales, [1,2]D. W. Hall, [1,2]J. P. Harrison, [1,2]D. P. S. Heath, [1,2]F. R. Hilborne, [1,2]D. B. Hill, [1,2]O. W. Hill, [1,2]E. D. Hocking, [1,2]R. S. Hole, [1,2]T. W. Hoskins, [2]H. J. Hoyland, [1,2]D. H. Hull, [2]C. J. B. Hundleby, [1,2]C. Hunnybun, [1,2]W. E. Ince, [2]J. N. Insall, [2,2]G. A. Irving, [1,2]P. D. Jackson, [1,2]A. M. C. Jennings, [2,2]Mrs. E. M. Jewell, [1,2]A. H. H. Johnson, [1,2]G. B. C. Jones, [1,2]J. K. L. Jones, [1,2]N. F. Jones, [2]P. M. Jones, [2]W. R. B. Jones, [1,2]N. W. Karunaratna, [1,2]F. J. Keegan, [2]R. C. M. Kew, [1,2]J. J. Key, [1,2]N. D. Kilpatrick, [1,2]B. M. King, [1,2]J. M. Kirk, [1,2]P. J. M. Lachelin, [1,2]P. J. Lachmann, [1]N. F. Leigh, [1,2]R. W. Lister, [1,2]H. K. Litherland, [1,2]B. E. Lomax, [1,2]E. W. Lord, [1,2]W. McConnachie, [1,2]P. McCormack, [1,2]P. J. McGregor, [1,2]J. T. Mainwaring, [2]G. Maisel, [1,2]F. Mansfield, [1,2]G. K. Matthew, [2]H. M. Melville, [2,2]A. E. H. Mence, [1,2]D. H. H. Metcalfe, [2]I. B. B. Milne, [1,2]W. R. Moore, [1]K. A. A. Mourin, [1,2]P. D. Mulcahy, [1,2]D. P. Mullin, [1]D. H. Murphy, [2]P. Murphy, [1,2]R. Murphy, [2,2]S. W. B. Newsom, [1,2]A. D. G. Nicholas, [1,2]F. V. Nicolle, [2]M. A. E. Nixon, [1,2]N. W. M. Orr, [2]G. W. Peacock, [1,2]R. K. L. Percival Smith, [2]G. M. Petrie, [2]R. M. Pollock, [1,2]T. R. Preston, [1,2]P. E. Putnam, [1,2]J. L. Reed, [1,2]N. C. R. W. Reid, [1,2]N. S. C. Rice, [1,2]F. F. Richards, [1,2]J. D. M. Richards, [1,2]E. R. Roberts, [1,2]R. J. Rushton, [1,2]A. J. Salsbury, [1,2]J. R. Sandford, [1,2]R. E. Scott, [1,2]A. J. Shaw, [1,2]J. Shaw, [1]J. H. W. Shaw, [1,2]B. J. Sheail, [1,2]P. H. W. Sheard, [2,2]R. O. S. Simn, [1,2]M. Slapak, [1,2]M. W. Sleight, [1,2]M. G. Smedley, [1,2]D. M. Smith, [1,2]E. A. H. Smith, [1]M. J. V. Smith, [1,2]R. W. M. Smith, [1,2]S. J. Steele, [1,2]R. V. Stephenson, [1,2]J. D. Stirland, [1,2]D. A. Swales, [1,2]K. A. McL. C.-O. Swinburne, [1,2]S. G. Taylor, [1]D. A. Thomas, [2,2]D. W. P. Thomas, [1,2]J. M. Thompson, [1,2]E. G. F. Tinsley, [1,2]I. A. D. Todd, [1,2]J. C. F. Townsend, [1,2]R. F. Tuckett, [1,2]J. E. Vallis, [2]M. A. M. von Bergen, [1,2]R. M. Wainwright, [1]W. D. Waller, [1,2]C. G. Waters, [1,2]A. J. Watson, [1]C. P. K. Watson, [1,2]G. A. Watson, [1,2]P. G. Watson, [1,2]R. C. Whalley, [1,2]L. G. Whitby, [1,2]H. J. O. White, [1,2]V. Whitehead, [1,2]G. E. G. Williams, [1,2]J. G. P. Williams, [2]M. G. Williams, [1]J. A. N. Wingate, [1,2]E. G. Wooster, [1,2]N. Wright, [1,2]O. Yates, [1,2]T. W. Young. *Part I (Pathology and Pharmacology)*: C. U. Abengowe, F. K. Amarquaye, C. F. N. Bennett, I. E. Bush, A. S. E. Crewdson, J. M. E. Dunn, G. W. M. Faris, B. W. K. Fayle, M. J. P. Furniss, A. C. Halliwell, D. B. Hill, E. D. Hocking, R. S. Hole, W. H. W. Inman, J. N. Insall, G. A. Irving, A. B. C. Jefferson, M. C. Johnson, N. D. Kilpatrick, M. I. Lander, N. F. Leigh, R. W. Lister, G. I. M. McLellan, J. T. Mainwaring, H. M. Melville, R. Murphy, A. D. G. Nicholas, F. V. Nicolle, J. D. J. Parker, R. A. N. Petrie, R. M. Pollock, J. E. Portelly, R. J. L. Potts, M. B. Rees-Jones, R. E. Scott, G. Screech, A. J. Shaw, J. Shaw, B. J. Sheail, P. H. W. Sheard, R. W. M. Smith, D. A. Swales, I. R. Thornber, E. G. F. Tinsley, M. K. T. Valentine, P. G. Watson, V. Whitehead, W. M. A. Wright.

[1]Passed in principles and practice of physic. [2]Passed in principles and practice of surgery. [3]Passed in midwifery and gynaecology.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—[1,2]E. W. J. Brown, [1,2]J. W. Carter, [1,2]B. G. Child, [1,2]D. H. Elliott, [1,2]Florence P. Forsythe, [1,2]C. J. W. Hunter, [1,2]R. F. Jewkes, [1,2]Ann E. Johnson, [1,2]W. G. G. I. Jones, [1,2]S. E. Josse, [1,2]Mary C. Munday (University Medal), [1,2]R. W. Portal, [1,2]K. T. Tighe, I. A. Abraham, C. D. Addo, P. Adlington, Barbara A. Alcock, M. J. Andrews, C. Angeli, C. R. N. Ashbee, Rosemary R. Ashby, L. Ashworth, S. Baccbus, A. J. M. Bailey, G. R. Ball, Armaity Bamboat, R. O. Barnard, R. M. Barnes, Elaine V. Barraclough, R. D. E. Basden, J. D. C. Baxandall, M. A. Beale, J. S. Beales, M. E. J. Beard, A. W. L. Beatson, M. A. Bedford, P. J. Bekenn, J. D. L. Bell, Phyllis J. A. Bell, R. L. Belsey, R. Bendall, R. J. J. Bennett, R. V. Berry, J. Bertram, L. J. Binnie, B. P. Bliss, T. W. Bolton, J. R. Bowles, L. B. H. Boxall, K. W. Braybon, R. S. Britton, C. P. Broad, Susan M. Brocklesby, J. F. Brooks, W. B. J. Broom, Helen R. L. Brown, K. W. Browne, V. R. Bruce, D. M. Bruton, A. G. Bryer, D. W. Bullman, D. R. Burcombe, Maureen V. Burrage, A. L. Bussey, K. A. Butler, M. B. Butler, R. M. C. Butler, R. P. Callaghan, D. I. Campbell, F. P. A. Capps, R. J. Carmichael, G. B. Carter, M. Chapman, Davina C. Cherry, C. D. Chilvers, T. G. C. Christopher, M. D. Churcher, J. M. Clark, A. J. Clement, E. Clissold, Dulcie V. Coleman, Delia F. Coney, D. B. Connell, J. Connolly, N. Conway, P. L. Cook, B. Corrin, M. H. Cox, F. Cramer, P. J. Creaven, A. H. Crisp, N. Crombie, J. G. Cruickshank, B. J. Cuddigan, J. B. St. C. Cumberbatch, J. M. Cundy, J. R. Curtis, D. F. Davies, R. D. Davis, B. P. Day, J. J. de Jode, P. L. G. G. Delva, Gillian R. Diamond, J. A. Easton, Helen E. Economides, J. M. Edwards, Mair A. Edwards, A. Elsworth, F. E. Ely, D. M. Entwistle, I. M. Evans, Joy Evans, Rachel G. Evans, J. O. O. Faleminin, P. Faridian Araqh, J. W. J. Fearne, G. McF. D. Fleming, P. G. T. Ford, P. A. French, M. J. N. Frohn, P. L. G. Gallwey, G. B. Gillett, A. B. Gilmour, Margaret A. Gordon-Watson, R. A. Gould, Fiona M. Graham, C. B. T. Grant, R. H. E. Grant, Ann B. Gray, J. M. Gray, I. D. Green, G. H. Griffith, P. D. Griffiths, P. D. J. Griffiths, A.-B. L. Gulati, Teresa M. Gurrin, D. M. Harris, J. M. Harry, T. D. Haskins, G. W. Hatcher, P. R. Hawley, B. Hecht, R. S. Henderson, Diana K. Henry, R. L. Hewer, Jennifer L. B. Hicks, T. Hillier, J. R. Hobbs, A. G. Hocken, Pamela M. Hogg, J. G. Holmes-Milner, C. V. Horn, Jennifer M. Hubble, I. D. Hudson, Pauline M. Hughes, D. I. Hughes-Davies, J. W. Hunt, Ann L. Hunter, J. D. Hurley, H. E. Innis-Palmer, G. W. Jenkins, T. Jenkins, Jane G. Jenkinson, Barbara D. Jones, W. E. O. Jones, A. J. Jordan, A. J. Jouhar, J. McK. Kennedy, M. G. Kielty, Barbara C. King, Margaret King, T. J. King, R. F. Knight, Pamela F. Kordik, V. A. Kumoji, G. D. Langham, R. J. K. Law, Marian E. Le Couilliard, P. F. S. Lee, D. S. Leede, J. R. Leeds, B. L. Lees, S. C. Lennox, A. W. F. Lettin, D. J. Lewis, W. G. Lewis, T. M. C. Lindsay, Patricia E. Linnell, D. B. Lloyd, Louis M. Louisy, J. N. Lunn, M. A. C. Lyon, B. C. McDermott, Bertha S. McGill, M. B. R. MacKenzie, D. M. MacLaren, R. E. Maclaurin, Angela de la C. Main, P. D. Marsden, P. B. Martin, Edna Matthews, Faith E. Maurice Williams, Ann P. Melville, G. B. Middle, J. Mikolajewski, F. J. C. Millard, M. Millest, W. F. Millner, R. E. Mills, P. H. Mine, B. A. E. M'ndham, R. M. Moffitt, Ann H. Montford, D. A. Montgomery, G. Morgan, J. A. Morgan, K. H. Morgan, M. T. Morgan G. M. Morris, J. R. Morton, P. A. Mounfield, Janice H. Mount, G. G. Muir, B. Murphy, J. K. Murphy, Pamela M. Myiward, P. H. Nankivell, A. I. C. Napier, F. J. Nash, M. A. Nelson, A. I. E. Nichini, E. R. Nye, N. W. J. Oliver, C. M. O'Neill, Pamela D. Osborn, D. A. Packham, H. Pambakian, D. R. J. Parrott, D. L. Parry, Margaret R. Paton, J. Payan, R. S. Peachey, R. L. V. Pearce, W. S. Pease, D. E. Pegg, P. A. Pelham, Eifion Phillips, Hazel M. Phillips, T. T. Phillips, Ann P. Pickering, B. N. Pickering, G. E. Pickup, J. F. G. Pigott, P. W. Pitt, Iris C. Platt, I. H. Porter, C. J. Powel Smith, J. Price, Anna Pridal, G. Priddle, Valerie J. Prior, J. Quantrill, M. C. Rang, Shirley G. Ratcliffe, W. D. Rees, D. E. Rendle, Kathleen M. Rich, D. A. Richardson, F. J. Roberts, A. R. Robertson, R. H. Robinson, W. D. Roche, R. K. Rondel, P. O. Rosanwo, I. G. Ross, Charmian A. Russell, D. G. L. K. Russell, J. A. Russell, Mary G. Russell, R. D. Sandfield, Winifred Sanford, J. V. Sawdy, B. Scaife, Elizabeth A. Scharff, P. M. Schiller, M. P. Y. Scott, P. J. Scott, A. K. Seeram, H. T. Shacklock, M. Sharp, A. J. H. Shepherd, M. C. Sheppard, Margaret T. Shiells, M. Shillito, C. D. G. L. Shimmin, G. R. Silver, P. J. G. Simons, E. C. Smart, D. G. Smith, G. L. Smith, Jean M. B. Smith, Marguerite E. Smith, P. G. Smith, R. B. F. Smith, Elizabeth A. Spence, D. M. Stainton-Ellis, R. E. Steel, A. S. V. Steele, M. D. B. Stephens, D. O. Stewart, P. J. Stiles, Susan Stonestreet, A. J. Sutton, G. R. Swift, A. R. Tanser, C. G. Taylor, D. J. Terry, P. H. J. Theobald, A. A. Ll. Thomas, D. B. Thomas, G. D. Thomas, G. R. Thompson, G. J. Thorpe, A. C. Ticehurst, J. E. Tindle, Dileas M. Tingle, J. W. Turner, Jennifer M. Vann, W. H. C. Walker, Margaret M. Walshe, W. J. Walton, Judith C. R. Wardle, Edna M. Watson, R. R. Welsh, H. Westbury, C. T. Western, D. Whitby, A. C. Whitmore, P. C. Wilkinson, P. E. K. Will, D. O. Williams, E. J. Williams, I. A. Williams, D. J. Willsher, D. W. Wilson, F. D. Wilson, P. E. H. Wilson, P. J. E. Wilson, Shirley J. Wilson, D. Winstock, Anne Winterton, A. J. Wood, C. D. Wooding, T. K. W. Woolacott, J. A. R. Worthy, B. C. Wyatt, P. R. Wykes, Grace O. Yoloye, R. C. Young, Barbara K. Zamoyska.

[1]With honours. [2]Distinguished in pathology. [3]Distinguished in medicine. [4]Distinguished in applied pharmacology and therapeutics. [5]Distinguished in surgery. [6]Distinguished in obstetrics and gynaecology.

The following candidates at the Institute of Psychiatry have been approved at the examinations indicated:

ACADEMIC POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE.—F. Grunberg, N. H. Rathod. The following have passed in Part I only: W. H. Allchin, C. P. B. Brook, M. D. Eilenberg, L. Goldie, Q. A. F. R. Grant, J. M. Hinton, G. M. Jacobides, I. P. James, W. I. N. Kessel, N. B. Kreitman, H. McG. McBryde, Naomi I. Penfold, R. Rodriguez Arganaris, M. H. Sheard, H. J. Walton, S. Wolff.

The degree of M.D. was awarded by the Senate on May 16 to T. G. Paxon.

UNIVERSITY OF WALES

The following candidates were admitted to the degrees of M.B., B.Ch. at a Degree Congregation held at Cardiff on July 24:

A. V. Barford, Hannah M. Beddow, June M. Birch, D. H. Blacknall, B. K. Bondzi-Simpson, P. Coy, D. Daley, D. E. Davies, I. A. Davies, J. A. Dodge, J. R. Dove, J. G. Elias, A. G. Evans, D. H. Evans, Ruth E. Francis, D. J. Griffiths, M. F. Holding, D. S. B. James, Enid P. Jarvis, R. A. C. Jones, W. I. Jones, Sheila B. Kidd, G. S. Lodwig, W. S. B. Loosemore, R. G. Penn, G. A. D. Rees, G. E. Roberts, Marise E. Roch, Jean M. Summerell, W. G. Thomas, G. Ll. Williams, J. M. Williams, Margaret D. Wyatt.

UNIVERSITY OF BIRMINGHAM

Dr. John Hardwicke, Lecturer in Experimental Pathology, has been appointed Deputy Warden of the Manor House.

Professor W. Melville Arnott, Professor A. P. Thomson, Dr. A. G. W. Whitfield, and Mr. Hugh Donovan have been appointed representatives of the University on the Standing Joint Committee of the University, the United Birmingham Hospitals, and the Birmingham Regional Hospital Board for the period April 1, 1956, to March 31, 1957.

UNIVERSITY OF BRISTOL

The dissertations by A. G. M. Davies and Grace E. Woods for the degree of M.D. have been approved.

The following candidates have been approved at the examinations indicated:

FINAL M.B., Ch.B.—[1,2]Pauline F. Haswell, [1]D. H. Wright, Miriam M. Alderwick, B. O. Amure, Elizabeth M. F. Andrews, J. H. Andrews, J. C. Bailey, E. P. Beck, [2]W. E. Benney, B. T. A. Clarke, Ruth E. A. Coles, H. E. Cramp, J. D. Davison, K. M. Evans, Irene E. Gibbs, P. M. Gill, C. L. G. Hale, A. F. Hickson, A. L. Horton, Rachel M. Hulbert, A. T. Lloyd, Sheila M. McClements, June M. McLeod, T. Morley, R. W. Morris, A. N. Okoro, K. M. Parry, W. F. Perera, C. K. Protheroe, M. J. Rose, W. J. Stephen, S. J. Strong, J. P. Telling, M. J. Watson, A. H. E.

Williams, Mary B. Wilson, C. H. Wood. *In Group I only*: W. B. Whitaker. *In Group II only*: J. S. A. Ashley, B. H. Bee, Edna M. Dumbell, M. J. Lewis, H. E. Millen, R. D. Neale, Hilary S. Prowse.

[1]With second-class honours. [2]With distinction in public health.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of the Council of the College held on May 10, with Sir Harry Platt, President, in the chair, the death of Mr. R. P. Scott Mason (Vice-president and member of the Court of Examiners) was reported and the Council unanimously adopted a resolution of condolence.

The President was asked by the Council to convey to Mr. Gerald S. Hughes, of York, its hearty congratulations on having completed fifty years as a Fellow of the College.

Dr. Bernard Johnson (Middlesex Hospital) and Professor Mary Lucas Keene (Royal Free Hospital) were admitted to the Fellowship, having been elected as medical practitioners of twenty years' standing.

The Begley Prize was awarded to C. R. N. Ashbee, of St. Bartholomew's Hospital Medical School.

Diplomas were granted, jointly with the Royal College of Physicians of London, as follows: In Child Health, to Mary K. M. Lindsay; in Tropical Medicine and Hygiene, to D. Buchanan and A. M. Rankin; in Industrial Health, to Doreen P. Allan; in Anaesthetics, to R. P. Holmes.

At a meeting of the Council of the College held on June 14, with Sir Harry Platt, President, in the chair, the Mitchiner Medal was presented to Colonel R. E. Waterston and the Lady Cade Medal to Air Commodore C. A. Rumball.

Professor F. A. R. Stammers was appointed as representative of the College on the Court of Governors of Birmingham University, and Sir William Kelsey Fry on the General Dental Council.

The Begley Prize was presented to C. R. N. Ashbee, of St. Bartholomew's Hospital Medical School.

Diplomas of Fellowship were granted to the following successful candidates:

H. M. Parsons, P. D. G. Pugh, I. K. R. McMillan, P. N. Porritt, G. N. Lumb, P. I. Busfield, S. S. Grové, P. E. B. Holmes, Ruth M. Robinson, J.-C. Gazet, A. R. Butterfield, A. M. Morkos, E. P. Abson, I. Coll, A. W. Eklund, D. Guha, J. N. Ormrod, M. N. Dutta, N. G. Mehta, W. A. T. Robb, D. St. C. Roberts, A. V. Forage, A. K. B. Hussain, L. I. McGuire, W. W. Woodward, R. P. Chandler, G. A. Dalton, M. A. Hossain, I. D. Thompson, A. C. Bowring, R. R. Collmann, K. C. D. Gordon, K. L. Lam, N. C. Little, J. A. MacDougall, G. F. Murnaghan, S. Parkash, J. N. Rohatgi, J. N. Tennant, M. M. Whiteley, S. Bhattacharyya, K. McD. Ewen, L. B. Fleming, J. Freidin, W. J. Levy, D. M. McLaren, T. J. McNair, J. D. Marsh, E. A. D. Russell, R. G. White, J. C. Wilson, R. G. Beard, N. A. Blumberg, K. R. Cox, W. F. P. Gammie, A. B. Holmes, D. Howell, A. M. Jatoi, I. K. Ross, N. G. Rothnie, R. Shannon, J. P. Williams, G. Wynne-Jones, R. P. Yaxley, G. E. Allin, J. B. Borman, M. D. Cameron, M. Claridge, P. B. Clark, W. T. Costello, C. L. Greaves, J. P. Halliday, G. W. Hankins, W. Lane-Mitchell, H. Perkin, P. B. Prasad, A. Singer, J. B. Walker, G. A. Cutler, B. J. Dooley, R. F. C. Jones, W. J. Lyons, N. S. Painter, I. Penn, J. M. Saunders, R. D. Smith, I. D. Crowley, H. T. John.

A Diploma of Membership was granted to E. O. O. Arbenser (Liverpool).

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College held on May 9, with Sir Walter Mercer, President, in the chair, the following candidates, having passed the requisite examinations, were admitted Fellows:

P. L. Berger, J. Bingham, A. C. Bowring, M. E. J. Brightman, I. Coll, H. Collinson, G. I. B. da Costa, G. A. Dalton, P. C. Dubey, D. B. Eaton, A. W. Eklund, C. A. Ezike, C. L. Greaves, M. B. Johnson, E. P. J. King, R. P. Leake, J. I. de B. Leembruggen, D. O. Maisels, N. K. G. Mendis, J. H. Miller, A. H. Mizrachy, H. Mohan, J. Morgan, N. R. A. Narayan, K. G. Orr, J. R. Page, H. Perkin, K. P. Prabhu, M. A. Qayyum, L. A. Sarembock, F. W. Shea, C. A. Shearer, D. M. Sinclair, D. P. Singh, R. D. Smith, B. D. Stringer, J. N. Tennant, I. C. K. Tough, R. Yule.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the College held on June 1, with the President, Dr. F. J. O'Donnell, in the chair, Dr. John G. Kirker was admitted to the Fellowship, and Dr. R. A. L. Agnew, Dr. R. W. Barter, Dr. M. D. Joyce, Dr. W. H. Moffatt, and Dr. W. A. Ryan were admitted to the Membership of the College.

ROYAL AUSTRALASIAN COLLEGE OF PHYSICIANS

At a meeting of the Council of the College held in Sydney on June 15, the following candidates, who were successful at an examination by the Australian Board of Censors, were admitted to Membership of the College: Dr. W. J. Hickey and Dr. I. J. McGelvie, of Queensland; Dr. P. N. Francis, Dr. J. E. Hassall, Dr. W. B. Hennessy, Dr. J. W. Lance, Dr. P. J. Maloney, and Dr. B. J. Smith, of New South Wales; Dr. J. M. Bradley and Dr. R. E. Seal, of Victoria; Dr. M. D. Begley and Dr. H. Lander, of South Australia; and Dr. J. B. Stokes, of Western Australia.

INFECTIOUS DISEASES AND VITAL STATISTICS

Summary for British Isles for week ending July 14 (No. 28) and corresponding week 1955.

Figures of *cases* are for the countries shown and London administrative county. Figures of *deaths* and *births* are for the 160 great towns in England and Wales (London included), London administrative county, the 17 principal towns in Scotland, the 10 principal towns in Northern Ireland, and the 14 principal towns in Eire.

A blank space denotes disease not notifiable or no return available.

The table is based on information supplied by the Registrars-General of England and Wales, Scotland, N. Ireland, and Eire, the Ministry of Health and Local Government of N. Ireland, and the Department of Health of Eire.

CASES in Countries and London	1956					1955				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	5	3	3	0	2	10	0	3	0	
Dysentery	1,149	164	109	3		1,816	195	321	16	1
Encephalitis, acute	2	1		0		0	0		0	
Enteric fever:										
Typhoid	2	0	0	0		2	0	0	0	1
Paratyphoid	16	3	8 (B)	0		7	0	0	0	0
Food-poisoning	396	38		7		117	10		1	
Infective enteritis or diarrhoea under 2 years				12	28				12	7
Measles*	3,276	329	90	41	222	29,018	3685	374	583	93
Meningococcal infection	42	3	8	1	1	48	4	22	1	2
Ophthalmia neonatorum	45	2	3	0		33	4	4	0	
Pneumonia†	210	11	115	1		980	58	257	42	18
Poliomyelitis, acute:										
Paralytic	49	5	4	1	12	10	2	1	0	1
Non-paralytic	58	3				3	0			
Puerperal fever§	220	29	4	0		252	43	9	0	
Scarlet fever	514	35	48	12	15	839	42	88	61	19
Tuberculosis:										
Respiratory	609	56	124	17		688	71	139	25	
Non-respiratory	74	4	11	1		90	13	28	5	
Whooping-cough	2,404	132	162	40	80	1,924	154	155	51	53

DEATHS in Great Towns	1956					1955				
	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire	Eng. & Wales	Lond.	Scot.	N. Ire.	Eire
Diphtheria	0	0	0	0	0	0	0	0	0	0
Dysentery	0	0		0		1	0		0	
Encephalitis, acute		1			0		0	1		0
Enteric fever	0	0	0	0		0	0	0	0	
Infective enteritis or diarrhoea under 2 years	3	1	1	0	0	3	0	2	0	1
Influenza	3	0	1	0	0	82	10	4	2	15
Measles		0	0	0	0		2	1	0	0
Meningococcal infection		1	0				1	1		
Pneumonia	137	12	16	6	8	458	78	42	24	18
Poliomyelitis, acute	0	0			0	0	1			0
Scarlet fever		0	0	0	0		0	0	0	0
Tuberculosis:										
Respiratory	38	4	7	0	4	92	15	13	0	9
Non-respiratory		0	1	1	1		2	1	0	0
Whooping-cough	1	0	1	0	1	2	0	0	0	0
Deaths 0–1 year	177	24	27	4	9	240	30	42	6	14
Deaths (excluding stillbirths)	4,390	610	458	66	131	7,525	1122	717	156	277
LIVE BIRTHS	8,001	1219	864	179	421	8,167	1234	928	215	258
STILLBIRTHS	196	17	20			197	18	27		

* Measles not notifiable in Scotland, whence returns are approximate.
† Includes primary and influenzal pneumonia.
§ Includes puerperal pyrexia.

Vital Statistics

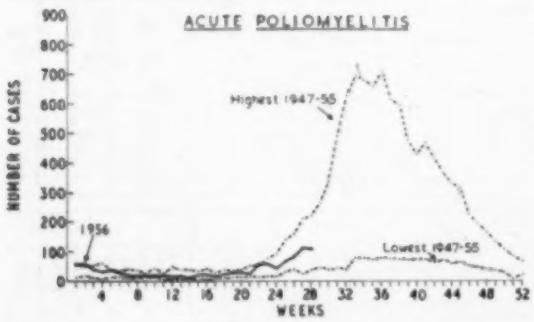
Poliomyelitis

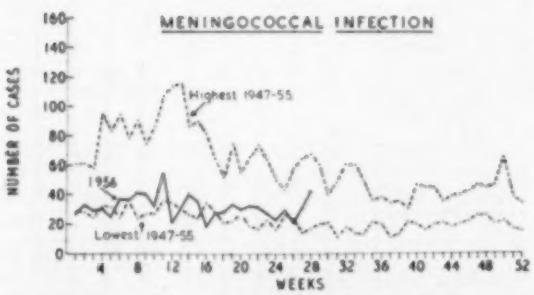
Poliomyelitis notifications in the week ending July 21 (29th week of the year) were as follows: paralytic 70 (49), non-paralytic 72 (58), total 142 (107). This is an increase of 35 compared with the previous week, the figures for which are in parentheses.

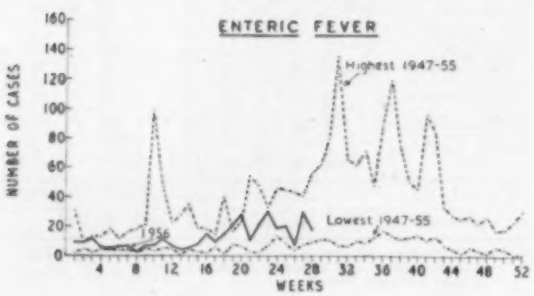
Cases notified from the beginning of the year (with rate per 100,000 population in parentheses) are as follows for districts of relatively high incidence: Macclesfield M.B. 24 (66), Whitehaven M.B. 22 (87), Ennerdale R.D. 18 (63), Darlington C.B. 19 (23), Middleton M.B. 12 (28), Yeovil M.B. 18 (75), Yeovil R.D. 6 (25), Guildford M.B. 30 (60), Carlton U.D. 7 (19), Manchester C.B. 148 (21), Woking U.D. 12 (21), Tottenham M.B. 21 (17), Reigate M.B. 9 (19), Guildford R.D. 11 (23), Hambledon R.D. 7 (21), Hoyland Nether U.D. 3 (19).

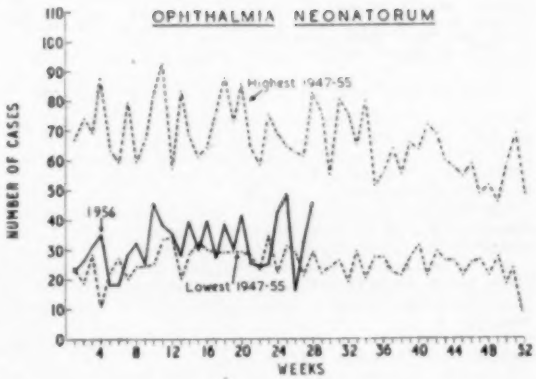
Graphs of Infectious Diseases

The graphs below show the uncorrected numbers of cases of certain diseases notified weekly in England and Wales. Highest and lowest figures reported in each week during the nine years 1947–55 are shown thus ------, the figures for 1956 thus ———. Except for the curves showing notifications in 1956, the graphs were prepared at the Department of Medical Statistics and Epidemiology, London School of Hygiene and Tropical Medicine.









Infectious Diseases

Infectious diseases were less prevalent in England and Wales during the week ending July 14. The largest declines in the numbers of notifications were 168 for scarlet fever, from 682 to 514, 153 for measles, from 3,429 to 3,276, 86 for dysentery, from 1,235 to 1,149, 84 for food-poisoning, from 480 to 396, and 49 for acute pneumonia, from 259 to 210.

The largest falls in the incidence of measles were 66 in Southampton County, from 139 to 73, and 54 in Sussex, from 172 to 118; the largest rises were 93 in Yorkshire East Riding, from 32 to 125, and 57 in Cornwall, from 67 to 124. A small decline in the incidence of scarlet fever was recorded in most regions, and there were no large local variations in trend. 2,404 cases of whooping-cough, 1 fewer than in the preceding week, were notified. The only large fluctuation in the local returns was a rise of 106 in Yorkshire East Riding, from 11 to 117. This was mainly due to an outbreak in Hull C.B., where 91 cases were notified. 5 cases of diphtheria, 2 fewer than in the preceding week, were notified.

The largest centres of dysentery were Yorkshire West Riding 259 (Leeds C.B. 53, Rotherham C.B. 37, Sheffield C.B. 32, Huddersfield C.B. 18, Dewbury C.B. 17, Adwick le Street U.D. 16, Wakefield C.B. 14), London 164 (Wandsworth 43, Lewisham 23, Woolwich 17, Greenwich 14, Hackney 10), Lancashire 137 (Liverpool C.B. 31, Blackpool C.B. 25, Lancaster M.B. 17), Warwickshire 77 (Coventry C.B. 62), Staffordshire 40 (Smethwick C.B. 26), Kent 36 (Dartford M.B. 11, Eastry R.D. 10), Middlesex 35 (Twickenham M.B. 18), Essex 34, Leicestershire 33 (Leicester C.B. 28), Lincolnshire 30 (Grimsby C.B. 22), Sussex 26, Southampton 25 (Farnborough U.D. 12), Nottinghamshire 24 (Nottingham C.B. 13), and Suffolk 22 (Ipswich C.B. 22).

Industrial Accidents and Diseases

The number of workpeople (other than seamen) in the United Kingdom whose deaths from accidents in the course of their employment were reported in June was 97, compared with 116 (revised figure) in the previous month and 104 (revised figure) in June, 1955.

The number of cases in the United Kingdom reported during June, 1956, were as follows: lead poisoning 5, anthrax 3, epitheliomatous ulceration 20, chrome ulceration 14; total 42. There were no deaths.—*Ministry of Labour Gazette*, July, 1956.

Week Ending July 21

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 530, whooping-cough 2,558, diphtheria 2, measles 3,251, acute pneumonia 221, acute poliomyelitis 142, dysentery 970, paratyphoid fever 16, and typhoid fever 4.

Medical News

Polio Vaccines in the Commonwealth.—Mr. J. R. HANAN, the New Zealand Minister of Health, stated in Wellington on July 23 that they were expecting to receive enough polio vaccine from Britain early this month to vaccinate 25,000 children. Children aged 9 years are to be inoculated, according to an official bulletin. In Australia the Director-General of Health, Dr. J. A. METCALFE, inaugurated a mass immunization campaign with vaccine from the Commonwealth Serum Laboratories, Melbourne, at the end of June. The campaign started with a million doses of vaccine, said Dr. Metcalfe, and the output from the Serum Laboratories was 220,000 doses a fortnight. He predicted that in two years' time Australia would produce enough vaccine to protect everyone in Australia. The June 23 issue of the *South African Medical Journal* includes a report from Dr. J. GEAR, director of research at the Poliomyelitis Research Foundation, Johannesburg, on the inoculation of 15,000 children in South Africa with a Salk-type vaccine made at the Foundation's laboratories. Vaccination was voluntary and was restricted to children under 5 years of age, except in the case of children of doctors and nurses, where 16 was the upper age limit. No cases of paralytic poliomyelitis attributable to the vaccine were notified, and no serious untoward reactions are stated to have occurred. Dr. Gear draws no definite conclusions about the protective value of the vaccine, in view of the relatively small number of children inoculated.

British Report on Narcotics.—In 1955, according to the British Government's report to the United Nations on narcotic drugs, exports of heroin were authorized to Barbados, British Honduras, Gold Coast, Irish Republic, Kuwait, Mauritius, St. Kitts-Nevis, and Uruguay. No heroin was imported, but the drug continued to be manufactured for domestic use and for export. Discussing drug addiction, the report states that this is not a serious problem in Britain. There is very little illicit traffic in manufactured drugs of addiction, and the addict who is also a "pusher" is unknown. Of the 335 known addicts, 179 took morphine, 64 pethidine, and 54 heroin. Among the addicts were 70 doctors, 14 nurses, and 2 dentists. Only four seizures of drugs are reported, all of Indian hemp (*Cannabis sativa*): 147 g. from a Liverpool club; 120 g. from a room in the East End of London; 1,105 g. from a car returning from Liverpool; and 390 g. from a car in Liverpool.

Royal College of Physicians of London.—At the quarterly comitia on July 26, at which the president, Sir RUSSELL BRAIN, presided, Professor W. G. BARNARD and Sir HAROLD BOLDERO were re-elected, respectively, treasurer and registrar. The following were elected censors for the ensuing year: Dr. T. C. HUNT, Sir HORACE EVANS, Dr. A. M. COOKE, and Professor A. KEKWICK. Dr. DONALD HUNTER was appointed Harveian Orator for 1957, and Professor AUBREY LEWIS Bradshaw lecturer for 1957. The award of the Conway Evans Prize to Lord ADRIAN, F.R.S., for his work in the field of physiology was announced. It was also announced that the Bisset Hawkins Medal had been awarded to Dr. G. S. WILSON for his "able development and direction of the Public Health Laboratory Service," and the Gilbert Blane Medal for 1956 to Surgeon Commander J. M. HOLFORD.

Royal College of Obstetricians and Gynaecologists.—At the council meeting on July 28, at which the president, Mr. C. H. READ, presided, all the College officers were re-elected. The vice-presidents are Professor A. M. CLAYE and Mr. V. J. F. LACK; the hon. treasurer Mr. A. C. H. BELL; and the hon. secretary Mr. I. M. JACKSON. Dr. J. T. LOUW was elected hon. treasurer of the South African regional council; the other regional treasurers were re-elected.

Royal College of Physicians of Edinburgh.—A presentation was made to Mr. W. J. PILCHER at the last quarterly meeting to mark his retirement after 34 years' service as College officer. Mr. PILCHER was given an inscribed wristwatch and a cheque from the Fellows of the College in appreciation of his long and faithful service.

London University.—Professor W. G. BARNARD, treasurer of the Royal College of Physicians of London, has been elected Dean of the Faculty of Medicine in the University of London. He replaces Dr. C. F. HARRIS, and will hold office for two years commencing on October 1. The following have been granted full recognition as teachers: Dr. C. H. LACK (bacteriology, Institute of Orthopaedics), Dr. S. A. MASON (anaesthetics, King's College Hospital), Dr. S. NEVIN (medicine, King's College Hospital), Professor G. PERKINS (orthopaedics, St. Thomas's Hospital), Dr. J. P. QUILLIAM (pharmacology, St. Bartholomew's Hospital), and Dr. G. SIMON (diagnostic radiology, St. Bartholomew's Hospital). Dr. R. G. BIRD (London Hospital Medical College) has been awarded the first Williams Fellowship for medical and scientific research. He is working on *Entamoeba histolytica* at the London School of Hygiene and Tropical Medicine.

Gerontology at Leeds.—The department of medicine at Leeds University has been granted £6,000 a year for two years by the Nuffield Foundation to support the gerontological research unit under Professor R. E. TUNBRIDGE.

Royal Masonic Hospital.—The EARL OF SCARBROUGH, Grand Master of the United Grand Lodge of Masons of England, laid the foundation stone, on July 24, of an 80-bed extension to the Royal Masonic Hospital at Ravenscourt Park, London. The extension will also provide accommodation for a pathology department, consulting-rooms for out-patients, and the nurse-training school. The funds for the new building, estimated to cost more than £700,000, are being raised by an appeal among English Freemasons. The new beds are hoped to be in use in two years' time. At present the hospital has 200 beds.

Ciba Foundation Awards for Research on Ageing.—Seventy-five papers from 17 countries were submitted for the 1956 awards. The following awards were made by the adjudicating panel (Professors C. H. Best, E. Braun-Menendez, A. Haddow, R. Nicolaysen, F. Verzar, F. G. Young, E. J. Conway, and V. R. Khanolkar, and Drs. G. W. Corner and A. S. Parkes): Dr. MADELINE KEECH and Dr. R. REED (Leeds University), jointly, £400; Dr. B. BRONTE-STEWART (Capetown University), £300; Mr. R. L. GREGORY (Cambridge University), £300; and Dr. J. CONWAY (Charing Cross Hospital, London), £200. Five other competitors received awards of £100 each. There will be a similar competition next year, for which the closing date is January 31, 1957. Full details from the Ciba Foundation, 41, Portland Place, London, W.1.

Department of Health for Scotland.—Changes, dating from August 1, are announced in the under-secretaries responsible, respectively, for health services and for town and country planning in Scotland. Mr. N. W. GRAHAM has been appointed under-secretary with responsibility for health services. Mr. T. D. HADDOW, who formerly held this position, transfers to town and country planning on the retirement of Mr. G. H. KIMPTON after 43 years' service with the Department and its predecessors.

"Doctor in the House."—The Victoria Palace Theatre (twice nightly), itself the scene of many an unrehearsed incident in the lighter side of medical student life, was the venue on July 30 of the stage version (by Mr. Ted Willis) of RICHARD GORDON'S novel *Doctor in the House*. A hardworking cast, excellently led by Alan White as Tony Grimsdyke, served up the mixture as before with a flavour that has already proved very much to the public taste and will doubtless continue so to be. Mr. Douglas Ives's Bromley, the hospital porter, was straight from any London teaching hospital one could think of—quite perfect.

American Physicians to Visit U.S.S.R.—A party of American physicians, which will include Dr. P. D. WHITE (Boston), Professor H. RUSK (New York), Professor ANCEL KEYS (Minnesota), Dr. J. WATT (National Heart Institute), and Dr. M. FIELD (Boston), are going to Moscow for a short visit in September, according to *The Times*, to discuss medical rehabilitation and epidemiological research in cardiovascular disease. It is understood that the visit has been arranged at the invitation of the Soviet Ministry of Health.

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TWO CASES OF POISONING WITH DI-ISOPROPYLFLUOROPHOSPHONATE (D.F.P.). W. K. S. Moore.
ARSINE POISONING. D. Blair Macaulay and D. Austen Stanley.
ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS: PROGRAMME OF 21ST ANNIVERSARY MEETING.
MISCELLANEA:
THE PRESCRIPTION OF INDUSTRIAL DISEASE. Ronald E. Lane.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Tuesday, August 7

INSTITUTE OF PSYCHIATRY.—12 noon, Dr. M. S. Guttmacher (Baltimore): Problems of Legal Psychiatry in America.

Wednesday, August 8

POSTGRADUATE MEDICAL SCHOOL, London, W.—2 p.m., Dr. Randolph K. Byers (Children's Medical Centre, Boston, Mass.): Neurological case demonstration.

Thursday, August 9

INSTITUTE OF PSYCHIATRY.—12 noon, Professor C. C. Pfeiffer (Georgia): Muscarinic Stimulation of the Brain Inhibits the Conditioned Response and Counteracts Schizophrenia.

APPOINTMENTS

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—Elizabeth L. Brown, M.B., Ch.B., Senior Registrar in Chest Medicine, Norwich and East Norfolk areas; G. A. Wall, M.B., Ch.B., F.R.C.S., Registrar in Plastic Surgery, Regional Plastic Surgery and Burns Unit, West Norwich Hospital; A. W. Robertson, M.B., B.S., F.F.A. R.C.S., F.F.A. R.A.C.S., Consultant Anaesthetist, South-west General Hospitals Group; P. A. L. Horsfall, M.B., B.Ch., M.R.C.P., Medical Registrar, North Cambridgeshire and Clarkson Hospitals; P. A. Harbison, M.B., B.S., Surgical Registrar, Ipswich and East Suffolk Hospital; I. P. Crowley, M.B., B.Ch., Surgical Registrar, North Cambridgeshire Hospital; B. J. Poole, M.B., B.S., Registrar in Geriatrics, Norfolk and Norwich Group of Hospitals.

BIRTHS, MARRIAGES, AND DEATHS

DEATHS

Costello.—On July 14, 1956, at the Regional Hospital, Galway, Thomas Bodkin Costello, M.D., D.P.H., of Bishop Street, Tuam, Co. Galway.
Dick.—On July 14, 1956, at Oxford, James Orford Wallace Dick, M.B., B.Chir., of Ladygrove House, Abingdon, Berks.
Duguid.—On July 11, 1956, at 4, Hermitage Gardens, Edinburgh, Alfred Duguid, M.B., Ch.B., of 19, Styvechall Croft, Coventry.
Kennedy.—On July 8, 1956, at Dunbar Hospital, Thurso, John Robert Kennedy, M.V.O., M.B., C.M., of 6, Couper Street, Thurso, late of Dunbeath, Caithness, aged 85.
McCutcheon.—On July 6, 1956, at R.N. Hospital, Haslar, Hants, James McCutcheon, M.B., B.Ch., Surgeon Rear-Admiral, ret., aged 79.
Rushworth.—On July 5, 1956, at Wrightington Hospital, near Wigan, Lancs, Cyril Davenport Rushworth, M.R.C.S., L.R.C.P., of Finch Lane, Appley Bridge, near Wigan, aged 37.

Any Questions?

We publish below a selection of those questions and answers which seem of general interest. It is regretted that it is not possible to supply answers to all questions submitted.

Palliative Hormone Therapy in Breast Cancer

Q.—*Is it worth advising palliative hormone therapy for a case of advanced cancer of the breast, with secondary deposits, which has already been treated by surgery and radiotherapy? If so, what regime is advised for use in general practice?*

A.—In every case of advanced cancer of the breast where surgery and radiotherapy have been tried and have failed, or where, because of the advanced nature of the condition, neither is applicable, hormone therapy should always be given a trial. This method of treatment is effective for a short time in about half of the patients and is occasionally quite miraculous in the benefits which it confers. Patients well past the menopause should be given 50 mg. of stilboestrol by mouth daily, and younger patients should be given injections of testosterone propionate—100 mg. three times a week intramuscularly. For further details of the management of such cases the inquirer is referred to an article in the Refresher Course series for general practitioners.[1]

REFERENCE

[1] Atkins, H. J. B., *British Medical Journal*, 1953, **1**, 1099.

Learning During Sleep

Q.—*Claims are made that by the use of a microphone under the pillow relaying teaching material during sleep the learning of languages or long parts from plays can be facilitated, and that attitudes to life can be influenced. To what extent are these claims true?*

A.—Despite the claims of a number of experimenters and commercial concerns, there is little or no conclusive evidence that learning can take place or be helped by repetition during sleep. A recent review[1] of ten American studies states that all had weaknesses either in experimental design, statistical treatment, methodology, or criteria of sleep. One early attempt to teach morse code to Navy men while they slept was stopped when it was found that "ambitious Navy instructors of the control group had been giving extra daytime instruction in order not to be out-taught." Not all the work had been so naïvely interrupted; but other errors generally crept in. For example, attempts were made to break nail-biting in boy campers by playing the phrase "My fingernails taste terribly bitter" through a loudspeaker 300 times a night for 54 nights. Forty per cent. of the experimental group and none of the control group (20 in each group) stopped biting their nails, which seemed a clear indication of the value of such verbal suggestion during sleep. A number of other kinds of learning material have been used, such as nonsense syllables, ordinary speech in retarded and aphasic children, and English–Chinese vocabularies. None of the studies stands up conclusively on examination. Some of them report "uncertain and improbable" learning during sleep; others, as in the case of the nail-biters, seem at first sight to point to unequivocal learning. The serious difficulty has been in establishing whether or not the subject was asleep. For instance, in the nail-biting experiment the boys were asked, before the experiment started, whether they were awake, and the input was turned off if the boys seemed restless. These are, of course, completely inadequate tests of sleep. (This experiment seems also to have been vitiated by the fact that control and experimental groups were unmatched for age, which is known to be related to nail-biting.) It is common experience that one may wake up and perform some quite complex action, and forget about it in the morning. Obviously the best criterion at present available is given by the electroencephalogram. It has been used recently in a well-planned study,[2] the general conclusion of which was that learning during real sleep is impractical and probably impossible. It is conceivable that during the drowsy state between sleep and waking learning may occur, but nothing is known at present about the possible harm that may be done by keeping a subject half awake in this way, nor about the relative efficiency of such learning if it does occur. Matter learned just before sleep seems to be better remembered on waking, probably because there is relatively little to "drive out" the memory. This may have given rise to the idea that learning may take place during sleep itself. At any rate, "for the present sleep-learning is not the simple matter that some experimenters and commercial firms, which sell equipment for this purpose, would lead us to believe."

REFERENCES

[1] Simon, C. W., and Emmons, W. H., *Psychol. Bull.*, 1955, **52**, 328.
[2] *J. exp. Psychol.*, 1956, **51**, 89.

British Influenza Vaccines

Q.—*What is the present position with regard to influenza vaccines in Britain? How effective are they and for how long does the immunity they confer persist? Are there any special contraindications to their use? Where may they be obtained?*

A.—The present position concerning influenza virus vaccines is that field trials are being carried out in Britain under the auspices of a committee of the Medical Research Council. These trials are designed to assess both the serological effect and the protective action of various vaccine preparations against influenza. Until the results of the present trials are announced, all that can be said is that somewhat less favourable results have been obtained in Britain compared with those reported in the American literature. Nevertheless, a significant protection was found in the trial of 1952–3, but this was insufficient to warrant a recommendation for use of the vaccine on anything but an experimental basis.[1,2] The duration of the immunity conferred by existing vaccines is unknown, but is thought not to be better than twelve months unless vaccines containing oil adjuvants are used.

Influenza vaccine, prepared at the Wright-Fleming Institute of Microbiology, St. Mary's Hospital, Paddington, is distributed by Messrs. Parke, Davis & Co., and is obtainable through retail chemists. The only known contraindication is the presence of sensitivity to egg protein.

REFERENCES

[1] *British Medical Journal*, 1953, **2**, 1173.
[2] Ibid., 1955, **2**, 1229, 1232.

Vaccination and Atopic Eczema

Q.—*Is it safe to vaccinate infants or children who have (a) active atopic eczema, (b) a few residual lesions of atopic eczema, or (c) only a history of atopic eczema in the past? What special precautions are advised to reduce the risks of generalized spread or an allergic response?*

A.—The vaccination of infants or children with active atopic eczema, or even residual lesions of this condition, is not advised because of the risk of eczema vaccinatum. Even if there is only a history of atopic eczema, in either the patient or his parents, vaccination in infancy might well be deferred because the introduction of a dermatopic virus producing damage to the epidermis has been so often followed by acute eczema that the provocative effect of vaccination can scarcely be doubted.

If a child is travelling to a country where smallpox is common it would probably be the lesser evil to take the risk of vaccination. If vaccination is performed on atopic infants or children, the skin should be cleansed with great care and the site of vaccination should be kept totally protected by a porous-plaster dressing, and at night a loose cardboard cylinder might be placed on the other arm to

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TWO CASES OF POISONING WITH DI-ISOPROPYLFLUOROPHOSPHONATE (D.F.P.). W. K. S. Moore.
ARSINE POISONING. D. Blair Macaulay and D. Austen Stanley.
ASSOCIATION OF INDUSTRIAL MEDICAL OFFICERS: PROGRAMME OF 21ST ANNIVERSARY MEETING.
MISCELLANEA:
THE PRESCRIPTION OF INDUSTRIAL DISEASE. Ronald E. Lane.

Issued quarterly; annual subscription £2 2s.; single copy 12s. 6d.; obtainable from the Publishing Manager, B.M.A. House, Tavistock Square, London, W.C.1.

SOCIETIES AND LECTURES

A fee is charged or a ticket is required for attending lectures marked ●. Application should be made first to the institution concerned.

Tuesday, August 7

INSTITUTE OF PSYCHIATRY.—12 noon, Dr. M. S. Guttmacher (Baltimore): Problems of Legal Psychiatry in America.

Wednesday, August 8

POSTGRADUATE MEDICAL SCHOOL, London, W.—2 p.m., Dr. Randolph K. Byers (Children's Medical Centre, Boston, Mass.): Neurological case demonstration.

Thursday, August 9

INSTITUTE OF PSYCHIATRY.—12 noon, Professor C. C. Pfeiffer (Georgia): Muscarinic Stimulation of the Brain Inhibits the Conditioned Response and Counteracts Schizophrenia.

APPOINTMENTS

EAST ANGLIAN REGIONAL HOSPITAL BOARD.—Elizabeth L. Brown, M.B., Ch.B., Senior Registrar in Chest Medicine, Norwich and East Norfolk areas; G. A. Wall, M.B., Ch.B., F.R.C.S., Registrar in Plastic Surgery, Regional Plastic Surgery and Burns Unit, West Norwich Hospital; A. W. Robertson, M.B., B.S., F.F.A. R.C.S., F.F.A. R.A.C.S., Consultant Anaesthetist, South-west General Hospitals Group; P. A. L. Horsfall, M.B., B.Ch., M.R.C.P., Medical Registrar, North Cambridgeshire and Clarkson Hospitals; P. A. Harbison, M.B., B.S., Surgical Registrar, Ipswich and East Suffolk Hospital; I. P. Crowley, M.B., B.Ch., Surgical Registrar, North Cambridgeshire Hospital; B. J. Poole, M.B., B.S., Registrar in Geriatrics, Norfolk and Norwich Group of Hospitals.

BIRTHS, MARRIAGES, AND DEATHS

DEATHS

Costello.—On July 14, 1956, at the Regional Hospital, Galway, Thomas Bodkin Costello, M.D., D.P.H., of Bishop Street, Tuam, Co. Galway.
Dick.—On July 14, 1956, at Oxford, James Orford Wallace Dick, M.B., B.Chir., of Ladygrove House, Abingdon, Berks.
Duguid.—On July 11, 1956, at 4, Hermitage Gardens, Edinburgh, Alfred Duguid, M.B., Ch.B., of 19, Styvechall Croft, Coventry.
Kennedy.—On July 8, 1956, at Dunbar Hospital, Thurso, John Robert Kennedy, M.V.O., M.B., C.M., of 6, Couper Street, Thurso, late of Dunbeath, Caithness, aged 85.
McCutcheon.—On July 6, 1956, at R.N. Hospital, Haslar, Hants, James McCutcheon, M.B., B.Ch., Surgeon Rear-Admiral, ret., aged 79.
Rushworth.—On July 5, 1956, at Wrightington Hospital, near Wigan, Lancs, Cyril Davenport Rushworth, M.R.C.S., L.R.C.P., of Finch Lane, Appley Bridge, near Wigan, aged 37.

Any Questions?

We publish below a selection of those questions and answers which seem of general interest. It is regretted that it is not possible to supply answers to all questions submitted.

Palliative Hormone Therapy in Breast Cancer

Q.—*Is it worth advising palliative hormone therapy for a case of advanced cancer of the breast, with secondary deposits, which has already been treated by surgery and radiotherapy? If so, what regime is advised for use in general practice?*

A.—In every case of advanced cancer of the breast where surgery and radiotherapy have been tried and have failed, or where, because of the advanced nature of the condition, neither is applicable, hormone therapy should always be given a trial. This method of treatment is effective for a short time in about half of the patients and is occasionally quite miraculous in the benefits which it confers. Patients well past the menopause should be given 50 mg. of stilboestrol by mouth daily, and younger patients should be given injections of testosterone propionate—100 mg. three times a week intramuscularly. For further details of the management of such cases the inquirer is referred to an article in the Refresher Course series for general practitioners.[1]

REFERENCE

[1] Atkins, H. J. B., *British Medical Journal*, 1953, 1, 1099.

Learning During Sleep

Q.—*Claims are made that by the use of a microphone under the pillow relaying teaching material during sleep the learning of languages or long parts from plays can be facilitated, and that attitudes to life can be influenced. To what extent are these claims true?*

A.—Despite the claims of a number of experimenters and commercial concerns, there is little or no conclusive evidence that learning can take place or be helped by repetition during sleep. A recent review[1] of ten American studies states that all had weaknesses either in experimental design, statistical treatment, methodology, or criteria of sleep. One early attempt to teach morse code to Navy men while they slept was stopped when it was found that "ambitious Navy instructors of the control group had been giving extra daytime instruction in order not to be out-taught." Not all the work had been so naïvely interrupted; but other errors generally crept in. For example, attempts were made to break nail-biting in boy campers by playing the phrase "My fingernails taste terribly bitter" through a loudspeaker 300 times a night for 54 nights. Forty per cent. of the experimental group and none of the control group (20 in each group) stopped biting their nails, which seemed a clear indication of the value of such verbal suggestion during sleep. A number of other kinds of learning material have been used, such as nonsense syllables, ordinary speech in retarded and aphasic children, and English–Chinese vocabularies. None of the studies stands up conclusively on examination. Some of them report "uncertain and improbable" learning during sleep; others, as in the case of the nail-biters, seem at first sight to point to unequivocal learning. The serious difficulty has been in establishing whether or not the subject was asleep. For instance, in the nail-biting experiment the boys were asked, before the experiment started, whether they were awake, and the input was turned off if the boys seemed restless. These are, of course, completely inadequate tests of sleep. (This experiment seems also to have been vitiated by the fact that control and experimental groups were unmatched for age, which is known to be related to nail-biting.) It is common experience that one may wake up and perform some quite complex action, and forget about it in the morning. Obviously the best criterion at present available is given by the electroencephalogram. It has been used recently in a well-planned study,[2] the general conclusion of which was that learning during real sleep is impractical and probably impossible. It is conceivable that during the drowsy state between sleep and waking learning may occur, but nothing is known at present about the possible harm that may be done by keeping a subject half awake in this way, nor about the relative efficiency of such learning if it does occur. Matter learned just before sleep seems to be better remembered on waking, probably because there is relatively little to "drive out" the memory. This may have given rise to the idea that learning may take place during sleep itself. At any rate, "for the present sleep-learning is not the simple matter that some experimenters and commercial firms, which sell equipment for this purpose, would lead us to believe."

REFERENCES

[1] Simon, C. W., and Emmons, W. H., *Psychol. Bull.*, 1955, 52, 328.
[2] *J. exp. Psychol.*, 1956, 51, 89.

British Influenza Vaccines

Q.—*What is the present position with regard to influenza vaccines in Britain? How effective are they and for how long does the immunity they confer persist? Are there any special contraindications to their use? Where may they be obtained?*

A.—The present position concerning influenza virus vaccines is that field trials are being carried out in Britain under the auspices of a committee of the Medical Research Council. These trials are designed to assess both the serological effect and the protective action of various vaccine preparations against influenza. Until the results of the present trials are announced, all that can be said is that somewhat less favourable results have been obtained in Britain compared with those reported in the American literature. Nevertheless, a significant protection was found in the trial of 1952–3, but this was insufficient to warrant a recommendation for use of the vaccine on anything but an experimental basis.[1,2] The duration of the immunity conferred by existing vaccines is unknown, but is thought not to be better than twelve months unless vaccines containing oil adjuvants are used.

Influenza vaccine, prepared at the Wright-Fleming Institute of Microbiology, St. Mary's Hospital, Paddington, is distributed by Messrs. Parke, Davis & Co., and is obtainable through retail chemists. The only known contraindication is the presence of sensitivity to egg protein.

REFERENCES

[1] *British Medical Journal*, 1953, 2, 1173.
[2] Ibid., 1955, 2, 1229, 1232.

Vaccination and Atopic Eczema

Q.—*Is it safe to vaccinate infants or children who have (a) active atopic eczema, (b) a few residual lesions of atopic eczema, or (c) only a history of atopic eczema in the past? What special precautions are advised to reduce the risks of generalized spread or an allergic response?*

A.—The vaccination of infants or children with active atopic eczema, or even residual lesions of this condition, is not advised because of the risk of eczema vaccinatum. Even if there is only a history of atopic eczema, in either the patient or his parents, vaccination in infancy might well be deferred because the introduction of a dermatopic virus producing damage to the epidermis has been so often followed by acute eczema that the provocative effect of vaccination can scarcely be doubted.

If a child is travelling to a country where smallpox is common it would probably be the lesser evil to take the risk of vaccination. If vaccination is performed on atopic infants or children, the skin should be cleansed with great care and the site of vaccination should be kept totally protected by a porous-plaster dressing, and at night a loose cardboard cylinder might be placed on the other arm to

prevent scratching. An antihistamine, such as elixir of diphenhydramine, 60 min. (3.5 ml.), given three times a day after food, would diminish the chance of an allergic reaction, and with eczematous infants it might be wise to give at the same time an injection of gamma globulin, 500 mg., at 3 months of age, increasing to 1 g. in older children.

Delayed Microscopy in Breast Tumours

Q.—*Where immediate histological examination is impracticable, as in certain tropical areas, is local diathermy excision of a possibly malignant lump in the breast, for later microscopy, unjustifiably risky? Radical treatment, in the cases proved to be malignant, would be undertaken within a week or two of the local excision. The only alternative would be to send all doubtful cases to a well-equipped hospital a long distance off for investigation and treatment.*

A.—There is no objection whatsoever to excision of a possibly malignant lump in the breast for histological examination, with a view to radical treatment a week or two later. In actual practice, however, the occasions when the surgeon would be in doubt about the diagnosis after macroscopic examination of the excised lump would be very rare, so the only cases in which radical treatment would be delayed for a week or two would be the very early growths which were unrecognizable macroscopically.

Toxicity of Ingested Detergents

Q.—*Does the common practice of not rinsing glasses and cups after washing with detergents constitute any danger?*

A.—Over the past ten years the experimental results of feeding some of these detergents to animals have been published. Even at levels as high as 1% in the whole diet, toxic effects have not been observed. Other experiments have shown that when added to feeding-stuffs detergents, like antibiotics, may actually improve the growth of certain domestic animals. There is thus no evidence to support a belief that the small quantities of detergents that may be consumed in food or drink put into unrinsed vessels would be harmful. The results of an investigation by a committee of the Medical Research Council into any possible carcinogenic action of detergents are not yet available.

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Q.—*What is the present life expectancy in Britain at birth, at one month, and at one year of age?*

A.—The latest official figures of expectation of life are those published in the Registrar-General's *Quarterly Return* No. 427 (Appendix B) and relate to England and Wales only. They are based on deaths registered in 1954. For males, the expectation of life at birth is given as 67.58 years, and at age 1 year 68.58 years. For females the expectation of life at birth is given as 73.05 years, and at age 1 year 73.69 years. No official estimates are given of expectation of life at one month. For the purpose of answering this question, however, a calculation based on published mortality data for England and Wales in 1954 suggests that the expectation of life at 4 weeks would be about 68.9 years for males and about 74.1 years for females.

Significance of Epimenorrhagia

Q.—*What is the likely significance of a reduction in the usual length of the menstrual cycle coupled with some increase in the duration of the flow in a woman of 37?*

A.—Epimenorrhagia is more often due to a local cause in the genital tract than to a general condition. Yet the patient may present complaining not of the menstrual disturbance but of the symptoms of resultant anaemia, such as weakness, breathlessness, and insomnia. After excluding a psychogenic factor, for which diligent inquiry must be made, the most likely extragenital cause is probably hypothyroidism. Among the local lesions, pelvic infections (including tuberculosis) and endometriosis are the most likely, especially if there is associated dysmenorrhoea. In pelvic infection the latter is typically premenstrual and more of a heaviness and dragging feeling, whereas the more acute pain of endometriosis is usually intramenstrual, although it may persist from a few days before to a few days after the period. In both of these conditions one would expect positive physical signs on bimanual examination, notably a restricted mobility of the genital organs and palpable enlargement of the appendages. Fibroids may affect the amount and duration of flow, but if there is also increased frequency of menstruation in the presence of palpable fibroids there is probably some coexistent disease of the appendages.

In the absence of pain and physical signs of local disease, functional epimenorrhagia may be presumed. It most commonly occurs when menstruation is resumed after the end of a pregnancy. In this, as in all functional menstrual disorders, there is a tendency to spontaneous cure in 6 to 12 months.

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REPORT ON HEALTH CENTRES

LONDON LOCAL MEDICAL COMMITTEE'S STUDY

Describing it as "a modest first instalment of this study" the London Local Medical Committee has sent a report on health centres to the London Executive Council for forwarding to the London County Council. The report, which is described as a study of facts rather than theory, is based on information obtained on four health centres (Woodberry Down, London; Harold Hill, Essex; John Ryle, Clifton, Nottingham; and William Budd, Bristol) and a group practice of three partners working in a Victorian building converted by the group into a practice centre. The committee gives its conclusions on the facts as it sees them.

Salient Features

The report summarizes the committee's observations on the salient features of the four centres and the group practice studied.

Relation to New Housing Estates.—In each case the health centres were planned in relation to a new housing estate. At Nottingham the centre was opened by the time 10% of the houses were built, but at London, Harold Hill, and Bristol not until after the estate was completed (at Bristol, long after). The group practice premises are the site of an old-established practice in an area long completely built up.

Accommodation.—The number of G.P. suites varies—six at Bristol and London, four at Nottingham, three at Harold Hill, and two in the group practice. Each suite consists of consulting-, examination-, and waiting-rooms, except at the group practice, where a waiting-room is shared between the two suites (most of the patients are seen by appointment).

Ancillary Help.—This appears to be adequate and satisfactory in all health centres except Nottingham, where it is minimal. In the group practice the staff might well suffice for double the number of doctors and patients

Partnership.—In two of the health centres some of the doctors are in partnership with each other, in the other two they are all in competition. Broadly speaking, in all the health centres the doctors practise independently of each other. In the group practice all three doctors are in partnership.

Other Surgeries.—All the health centres are branch surgeries; the group practice is the only surgery for the group.

Local Authority Services.—There is accommodation for these in all the health centres. In Bristol the local authority uses the general-practitioner suites; in Nottingham the accommodation is minimal; in London it is lavish. There is no local authority accommodation in the group practice premises, but the doctors hold an antenatal clinic for their own patients every week. They also give advice on infant welfare, although at the moment they do not have a fixed session for this.

Capital Costs.—Comparison of costs is influenced by certain facts. The health centres have all been built since 1948: the group practice premises are a converted Victorian house. Bristol and Nottingham centres are housed temporarily in their present buildings: London and Harold Hill centres are permanent. In Bristol the same premises are used by the general practitioners and the local health authority, and the cost of the general-practitioner unit is the cost of the whole building.

The capital costs of the general-practitioner units are set out in the following table.

	Cost of G.P. Unit	Cost per Suite	Cost per Doctor
	£	£	£
London	57,000	9,500	9,500
Harold Hill	15,000	5,000	1,666
Nottingham	6,000	1,500	1,500
Bristol	16,000	2,666	1,777
Group practice	7,500	3,750	2,500

Running Costs.—The running costs per annum are compared in the following table:

	Cost of whole G.P. Unit	Cost per Suite	Cost for each Doctor	Cost to each Doctor	Cost per Attendance
	£	£	£	£	s. d.
London ..	5,850	975	975	350	4 4
Harold Hill ..	4,200	1,400	466	111	4 11
Nottingham ..	1,400	350	350	104	2 9
Bristol	6,700	1,116	766	100	4 0
Group practice	2,900	1,450	966	966	3 0

NOTES: *Cost to Each Doctor.*—In all the health centres this is the cost for a branch surgery, and the doctors have other surgeries to pay for; in the group practice this is the only surgery.

Cost per Attendance.—There are no nurses at Nottingham; this lowers the cost per attendance both by increasing the number of times the doctors see patients and by the absence of nurses' salaries from the total running costs. At Harold Hill the higher figure appears to be due solely to the fact that the doctors do not attend daily.

Five Major Issues

The report refers to five major issues raised by the Minister of Health in a letter to the London County Council on the future of health centres. These are (1) reduction of capital cost; (2) association of general medical and local authority services; (3) restriction to areas of large-scale housing development; (4) reservation of sites for health centres; (5) group practice loans as an alternative to the provision of health centres.

Reduction of Capital Costs

The committee agrees that a large reduction in capital cost could and should be made. Making full use of the

prevent scratching. An antihistamine, such as elixir of diphenhydramine, 60 min. (3.5 ml.), given three times a day after food, would diminish the chance of an allergic reaction, and with eczematous infants it might be wise to give at the same time an injection of gamma globulin, 500 mg., at 3 months of age, increasing to 1 g. in older children.

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Salient Features

The report summarizes the committee's observations on the salient features of the four centres and the group practice studied.

Relation to New Housing Estates.—In each case the health centres were planned in relation to a new housing estate. At Nottingham the centre was opened by the time 10% of the houses were built, but at London, Harold Hill, and Bristol not until after the estate was completed (at Bristol, long after). The group practice premises are the site of an old-established practice in an area long completely built up.

Accommodation.—The number of G.P. suites varies—six at Bristol and London, four at Nottingham, three at Harold Hill, and two in the group practice. Each suite consists of consulting-, examination-, and waiting-rooms, except at the group practice, where a waiting-room is shared between the two suites (most of the patients are seen by appointment).

Ancillary Help.—This appears to be adequate and satisfactory in all health centres except Nottingham, where it is minimal. In the group practice the staff might well suffice for double the number of doctors and patients

Partnership.—In two of the health centres some of the doctors are in partnership with each other, in the other two they are all in competition. Broadly speaking, in all the health centres the doctors practise independently of each other. In the group practice all three doctors are in partnership.

Other Surgeries.—All the health centres are branch surgeries; the group practice is the only surgery for the group.

Local Authority Services.—There is accommodation for these in all the health centres. In Bristol the local authority uses the general-practitioner suites; in Nottingham the accommodation is minimal; in London it is lavish. There is no local authority accommodation in the group practice premises, but the doctors hold an antenatal clinic for their own patients every week. They also give advice on infant welfare, although at the moment they do not have a fixed session for this.

Capital Costs.—Comparison of costs is influenced by certain facts. The health centres have all been built since 1948: the group practice premises are a converted Victorian house. Bristol and Nottingham centres are housed temporarily in their present buildings: London and Harold Hill centres are permanent. In Bristol the same premises are used by the general practitioners and the local health authority, and the cost of the general-practitioner unit is the cost of the whole building.

The capital costs of the general-practitioner units are set out in the following table.

	Cost of G.P. Unit	Cost per Suite	Cost per Doctor
	£	£	£
London	57,000	9,500	9,500
Harold Hill	15,000	5,000	1,666
Nottingham	6,000	1,500	1,500
Bristol	16,000	2,666	1,777
Group practice	7,500	3,750	2,500

Running Costs.—The running costs per annum are compared in the following table:

	Cost of whole G.P. Unit	Cost per Suite	Cost for each Doctor	Cost to each Doctor	Cost per Attendance
	£	£	£	£	s. d.
London ..	5,850	975	975	350	4 4
Harold Hill ..	4,200	1,400	466	111	4 11
Nottingham ..	1,400	350	350	104	2 9
Bristol	6,700	1,116	766	100	4 0
Group practice	2,900	1,450	966	966	3 0

NOTES: *Cost to Each Doctor.*—In all the health centres this is the cost for a branch surgery, and the doctors have other surgeries to pay for; in the group practice this is the only surgery.

Cost per Attendance.—There are no nurses at Nottingham; this lowers the cost per attendance both by increasing the number of times the doctors see patients and by the absence of nurses' salaries from the total running costs. At Harold Hill the higher figure appears to be due solely to the fact that the doctors do not attend daily.

Five Major Issues

The report refers to five major issues raised by the Minister of Health in a letter to the London County Council on the future of health centres. These are (1) reduction of capital cost; (2) association of general medical and local authority services; (3) restriction to areas of large-scale housing development; (4) reservation of sites for health centres; (5) group practice loans as an alternative to the provision of health centres.

Reduction of Capital Costs

The committee agrees that a large reduction in capital cost could and should be made. Making full use of the

rooms provided would be the most important step towards economy. For a G.P. suite to be used for approximately six hours a week is a waste of expenditure. The committee does not think that it would be possible in all cases for doctors to close their outside surgeries and practise solely from a health centre, but a doctor in a centre should expect to have a regular morning and evening surgery. Moreover, if two doctors using a health centre were in partnership they could use the same suite of rooms at different times, at all events in the mornings. Another economy in use of rooms would be effected if the G.P. suites were used for local authority clinics in the afternoons.

Association Between Local Authority M.O.s and G.P.s

The committee considers that the assumption that when two services are housed in the same building there will be co-operation between them automatically is fallacious. In the committee's view the essence of co-operation is to see that the same patient does not receive advice on treatment and advice on prevention which are contradictory, and the best way to achieve this is for the advice in both cases to be given by the same doctor.

The report goes on to say: "We think, therefore, that all general practitioners who wish to do so should hold infant welfare clinics for their own patients, at which they would be assisted by health visitors. We see no reason why these clinics should not be held in the general-practitioner suites of health centres, as they are in Bristol, but we consider that the right to hold them there should not be restricted to the doctors who practise from the centres, as it is in Bristol."

Co-operation between general practitioners who do not wish to undertake all personal health services for their patients and the local authority doctors who do this work for them, the committee states, is essentially a matter of personal contact rather than architectural planning.

Siting of Health Centres

The committee disagrees with the Minister's view, expressed in his letter to the L.C.C., that appropriate conditions for the provision of health centres exist only in areas of large-scale housing developments. In its view conditions are also appropriate where there are no suitable premises or premises that can be made suitable. This definition includes (1) certain built-up areas, and (2) areas of large-scale housing development where there are no premises at all. These latter areas are of two types: (*a*) new housing estates, and (*b*) areas of large-scale rebuilding. Different considerations apply to the two types.

New housing estates take several years to build. It would be wasteful of medical manpower to introduce, say, four doctors when at first one only was needed, let alone the great difficulty that each doctor would have in making a living. On the other hand, if doctors were introduced into the health centre as the need arose (1 for each 2,500 is the figure accepted by the Medical Practices Committee) other difficulties would arise. The doctor who started first would have an advantage over his colleagues who follow. Would they all pay the same rent?

Furthermore, while the committee does not regard it as essential that all the doctors working in a centre should be in partnership, it thinks it essential that those who use the same suite should be, since full use cannot be made of the room space unless each suite is occupied by more than one doctor. It follows that the doctor who first occupies the suite must be free to choose the partner to share it with him, and to benefit from being the senior partner. Thus some of the doctors starting practice on a new estate would benefit much more than others.

In areas of large-scale rebuilding in already built-up districts these problems would not arise. In these areas there would be established practitioners who would be losing their existing surgeries, and, if there were enough of them willing to enter a health centre and willing to co-operate, the committee thinks that a health centre could well be established.

Reservation of Sites

The only feasible way, in the committee's opinion, of solving the difficulty of sites reserved for health centres lying unused for years is by adopting what it describes as "the Nottingham plan in reverse." The Nottingham health centre was built with a view to its being converted into dwelling-houses if it was no longer required for its original purpose. In reverse, the committee suggests that the ground floor of a block of flats might be so built that the flats could be converted into health centre suites if required in future.

Group Practice versus Health Centres

In the committee's view the purpose of health centres is to achieve: (1) adequate and suitable premises for doctors to work in; (2) provision of ancillary help—nursing, clerical, etc.—to relieve doctors of work which others can do equally well; (3) bringing together general practice and preventive medicine; and (4) accommodation for several doctors to work in the same building, and to co-operate and consult together.

How far, it asks, are these purposes achieved by health centres on the one hand and group practice premises on the other? As regards premises the health centre is more costly, but probably better adapted. Ancillary help is provided in both. But in a group practice the doctors do not have the assistance of midwives and health visitors, which, the committee thinks, is wrong. As for co-operation between doctors, the committee believes that the fullest co-operation and consultation will only be achieved if they are in partnership, and in this respect the group practice is superior to the health centre. The committee summarizes its views as follows:

Group practice premises start with the doctors, nearly always in partnership, and proceed to the site and the building. Health centres start with the site and the building, and then attempt to bring in the doctors. Group practices give a more flexible approach, and much less costly results, but the local health authority is excluded from the picture. We think this is a most unfortunate result, and we hold that there is an urgent need for the erection in London of other health centres of modest proportions, where, if possible, all the doctors would be in partnership, and where they would provide preventive as well as curative services for their patients, with the co-operation of health visitors and midwives.

Attitude of Patients

The committee finds that so far patients have not shown any preference for the health centre as against the private surgery, yet the success of group practices disproves the theory that patients so prefer one doctor's private surgery that they will never take to a health centre or any other type of large central surgery. Why, the committee asks, has the group practice which it studied been more successful than any of the four health centres? The answer, it concludes, is that the patients of the group practice are receiving a better service—in the form of extended hours of consultation, in the use of an appointment system, and in infant welfare and antenatal care, all from the same three doctors—than is available at any of the four health centres. But the committee sees no reason why a group of doctors in partnership should not provide an equally good service at a health centre. Until patients have received the full services which a health centre could provide no one can say what their attitude would be to it.

The committee's main general conclusion is that up till now too much attention has been paid to buildings and too little to the people who work in them and to the people who use them.

Recommendations

The report concludes with the following recommendations:

(1) That the initial cost of health centres should be greatly reduced.

(2) That the scheme for the reservation of sites suggested in the report be explored by the London County Council, and, if found practicable, be immediately extended to the whole country.

(3) That health centres of modest proportions be erected as soon as possible.

(4) That doctors working in a health centre should be consulted on the appointment of their ancillary staff.

(5) That the London County Council should make available the services of health visitors at all group practices and to all other general practitioners, as far as possible, to assist in providing personal health services for their patients.

(6) That the London County Council, the London Executive Council, and the London Local Medical Committee should take steps to foster and increase co-operation between general practice and preventive medicine.

GENERAL MEDICAL COUNCIL

MEDICAL DISCIPLINARY COMMITTEE

A session of the Medical Disciplinary Committee of the General Medical Council was held on July 17 and 18, under the chairmanship of Professor Sir DAVID CAMPBELL.

The case of DAVID PHILIP LEWIS-BEDGETT, registered as of Mossley, Manchester, was called on the ground of a conviction at Loughborough magistrates' court in 1951 of being in charge of a motor-car when under the influence of drink or drugs, and a similar conviction at Lancashire county quarter sessions in 1955 of being in charge of a motor vehicle when under the influence of drink, on which later occasion he had been fined £100 and disqualified from driving for three years. The respondent did not appear before the Committee, but a letter was read from his doctor stating that he was ill and quite unfit to travel to London, and in view of the nature of the inquiry he would like to be present in person when the case was heard. The Committee agreed to postpone the case to the next sessions.

The Committee considered a case in which judgment had been postponed in May, 1954, May, 1955, and May, 1956, against WILLIAM FRANK CRUICKSHANK, registered as of Westmuir, Brechin, Angus, concerning whom it had been found that he had been convicted in 1954 at Coventry of being drunk and disorderly; that on frequent occasions from December, 1952, to February, 1953, he had failed without reasonable cause to attend at his surgery at Brechin during consulting hours or to make any arrangements for the treatment in his absence of patients attending his surgery, and that in three named cases he had failed without reasonable cause to visit or treat patients when their condition so required, and for whose treatment he was responsible under the National Health Service, in spite of requests that he should do so. In May, 1956, after two postponements of judgment, the Committee was informed that in January of that year Dr. Cruickshank had been convicted at Marylebone magistrates' court of driving a motor-car when under the influence of drink and had been fined £15, disqualified for driving for 12 months, and ordered to pay ten guineas costs.

Dr. Cruickshank was present, but not legally represented. He addressed the Committee and expressed his great regret, and spoke of his hopes for his establishment in practice in London.

The Chairman said that the Committee had decided to give him a further opportunity of considering his conduct, and to postpone judgment again for a year, until May, 1957. At that time he would be required to furnish the names of professional colleagues who would be prepared to testify from their knowledge as to his conduct in the interval.

Alleged Canvassing

The Committee considered the case of CORNELIUS O'BRIEN, registered as of Walton Breck Road, Liverpool, 4, M.B., B.Ch. 1943, N.U.Irel., who appeared on the charge that, between September, 1954, and April, 1955, he had canvassed persons living in the Millpark Estate, Eastham, Cheshire, with a view to persuading them to become his patients, and that in relation to the facts alleged he had been guilty of infamous conduct in a professional respect.

The complaint was presented by Mr. E. B. McLellan, counsel, and Dr. O'Brien was legally represented by Mr. J. Tarsh.

No witnesses were called, and the case rested upon a number of statutory declarations, from which it appeared that Dr. O'Brien had canvassed for patients on a new housing estate which was receiving an overflow population from Liverpool and other centres. Statutory declarations were also put in on the other side, some of them from Dr. O'Brien's professional colleagues, testifying to his excellent character. He was 38 years of age and happily married.

After a short deliberation in camera, the Chairman announced that the Committee had judged Dr. O'Brien to have been guilty of "infamous conduct in a professional respect," and they were unable to regard the circumstances as affording any justification for his conduct. But having regard to assurances which he had given and the testimonials produced in his favour, they hoped the warning he had received would be effective, and had not directed the Registrar to erase his name from the *Medical Register*. This closed the case.

Not Guilty of Canvassing

The Committee proceeded to consider a charge against ALLAN CHARLES ARTHUR, registered as of Lanark Road, Edinburgh, 11, M.B., Ch.B. 1945, U. Glasg.; M.B., B.Chir. 1946, U. Camb.; M.R.C.P.Edin. 1948, that since November, 1955, he had advertised for the purpose of obtaining patients and promoting his own professional advantage by exhibiting notices outside premises at 76, Wereton Road, Audley, and 123, High Street, Halmer-end, in excess of anything reasonably necessary to indicate to those seeking his surgeries the places and times at which they were held, and further that at dates in November, 1955, and on subsequent occasions he had canvassed persons who were the patients of Dr. J. R. F. E. Jenkins, with a view to inducing such persons to become his patients, and that in relation to the facts alleged he had been guilty of infamous conduct in a professional respect.

Complainant's Case

The case was presented on behalf of the complainant, Dr. Jenkins, by Mr. L. Thompson and Mrs. M. Riseborough, counsel, instructed by Messrs. Knight and Co., solicitors, and the respondent was legally represented by Mr. Leigh Taylor, solicitor, of Hempsons.

Mr. Thompson said that Dr. Arthur in the autumn of last year replied to an advertisement by Dr. Jenkins, of Audley, for a partner in his practice. At that time Dr. Arthur was in Edinburgh. After an interview with Dr. Jenkins he said that he would like to join in partnership with him. A difficulty arose over housing accommodation, and for a time Dr. Arthur lived in a near-by house. No actual date was fixed for the partnership to come into operation, and from the advertisement it was evident that there would have to be a probationary period of six months. The usual undertaking not to establish himself in opposition to his late partner at the conclusion of the practice was required.

After a time some dissatisfaction arose and the partnership was terminated on November 26 last. It was alleged that since then Dr. Arthur, having established himself in the vicinity, had visited patients who were on Dr. Jenkins's list and had canvassed them with a view to transfer to his own. He had also exhibited notices at his surgeries which gave information in excess of what was usual in such announcements, as, for example, the telephone number at which messages would be received after a certain hour when he was no longer at the surgery. The notices were afterwards suddenly taken down, perhaps because it was realized that they were not ethically proper. It was claimed that Dr. Arthur had set out on a course of action to attract patients to the practice he had started at Audley, notwithstanding the usual undertaking in such circumstances.

Dr. Jenkins gave evidence in support of the complaint, and related the circumstances attending the negotiations for

a partnership and the final breakdown. He produced photographs of the notices which Dr. Arthur had put up at the surgeries.

In cross-examination by Mr. Taylor, Dr. Jenkins denied that it was he who was in a hurry to get a partner. Much of the cross-examination turned upon conversations and letters between the parties. Dr. Jenkins was asked whether he had ever said anything derogatory about Dr. Arthur, whether he had told patients that he was not a competent doctor, and whether he had said to one patient that Dr. Arthur was not fit to be a doctor and that he was going to get him struck off the *Register*. Dr. Jenkins denied both in cross-examination and re-examination that he had said anything derogatory of Dr. Arthur or decried his professional ability.

Six patients on Dr. Jenkins's list then gave evidence on conversations they had had with Dr. Arthur. One of them said that Dr. Arthur had asked whether he was satisfied with his doctor. Another was understood to say that Dr. Arthur had stated that he could do more for him than Dr. Jenkins had done. The conversations all seemed to turn on the possibility of transfer from one doctor's list to another.

The Defence

Dr. Arthur then gave evidence on his own behalf. In answer to Mr. Leigh Taylor he said that he was married and had two children. He had an interview with Dr. Jenkins with a view to partnership in September of last year. Dr. Jenkins made no complaint about his work as a partner or prospective partner, but on October 26 he received a letter from Dr. Jenkins's solicitor requiring him to move out of Dr. Jenkins's house, which he was then occupying. This was contrary to his understanding of what was agreed between them, and he had to consider his future. He had been brought into this area expecting a partnership, and he suddenly found himself without a house to which to move his family. He obtained some premises at a distance, in a district where Dr. Jenkins, so far as he knew, had no patients. With regard to the notices he put up on the premises, he did not think them improper. They contained only information on where he could be found at certain hours. He disputed the statements which the witnesses had attributed to him. His purpose in calling was in some cases to say good-bye or to give a promised certificate, and so on. He had not canvassed for patients. Dr. Arthur was altogether 3¼ hours in the witness box.

Mr. Leigh Taylor, in a final speech for Dr. Arthur, said that this case seemed to have been pressed with extraordinary vigour. Slight incidents had been magnified and built up so as to suggest a canvassing campaign. But the Committee would now see both sides of the picture. Dr. Arthur had been brought into this area in the expectation of a partnership which had come to nothing. It would have been wiser if after its termination he had decided not to remain in the neighbourhood, but there was an area which he thought satisfactory and in which Dr. Jenkins had not practised. The conversations of the witnesses were capable of different constructions, including perfectly innocent ones. Accusations had been made which had not been substantiated.

After a brief private deliberation the Committee's decision was announced by the Chairman as follows:

Mr. Arthur, I have to announce that the Committee have determined that the facts alleged against you in the charge have not been proved to their satisfaction, and accordingly that you have not been guilty of infamous conduct in a professional respect. That closes the case.

TRADE UNION MEMBERSHIP

The following is a list of local authorities which are understood to require employees to be members of a trade union or other organization:

Metropolitan Borough Councils.—Fulham, Southwark.
Non-County Borough Councils.—Crewe.

REMUNERATION CLAIM

DEPUTATION TO MINISTER

The following representatives of the Negotiating Committee met the Minister of Health on Wednesday afternoon: Sir Russell Brain, Dr. A. Talbot Rogers, Dr. S. Wand, Dr. J. D. S. Cameron. They were accompanied by Sir James Millard Tucker, Q.C., Mr. S. B. R. Cooke, Q.C., Professor R. G. D. Allen, with the Association's solicitor and members of the secretariat.

JOINT CONSULTANTS COMMITTEE'S PROTEST

The following is the text of a statement issued to the press on July 25 on behalf of the Joint Consultants Committee, representing the Royal Colleges, the Scottish Royal Medical Corporations, and the Central Consultants and Specialists Committee of the B.M.A.

The Joint Consultants Committee, representing the 18,000 doctors who staff the hospitals of the country, has heard with indignation of the Government's brusque refusal to consider the fair and reasonable claim put forward by the medical profession for an adjustment in its remuneration. The claim is no more than a request for a fulfilment of the solemn promises made to the medical profession when it entered the National Health Service. No section of the community in recent years has exercised greater restraint than the medical profession in asking for adjustments in its earnings to meet the falling value of money. Like professional workers in general, they are a minority in the community. That is no reason why, the value of their earnings having been whittled away by inflation, the reasonable claim they have at last been driven to make should be given this contemptuous dismissal. The Negotiating Committee presented to the Ministers a long, reasoned document which they have abruptly rejected in a few words without the courtesy of explaining their reasons for doing so.

The Committee wishes to associate itself fully with the protest against the Government's decision already made by the General Medical Services Committee (*Supplement*, July 28, p. 84), representing the 20,000 family doctors of the country. Like the General Medical Services Committee, it pledges its wholehearted support to the Negotiating Committee in whatever steps may be necessary to secure that the Government reconsiders this decision.

PUBLIC HEALTH MEDICAL OFFICERS

MOTOR-CAR ALLOWANCES

To the revised motor-car allowances for public health medical officers set out in M.D.C. circular No. 29 (*Supplement*, July 28, p. 86) should be added the following lump sum allowances and rates per mile which replace those given in paragraph 2 of the enclosure to M.D.C. circular No. 15:

	Not Exceeding 10 h.p. or 1,199 c.c.	Exceeding 10 h.p. or 1,199 c.c. but not Exceeding 12 h.p. or 1,399 c.c.	Exceeding 12 h.p. or 1,399 c.c. but not Exceeding 14 h.p. or 1,599 c.c.	Exceeding 14 h.p. or 1,599 c.c.
Lump sum allowance ..	£54	£60	£66	£72
Rate per mile for first 7,200 miles per annum	5½d.	6d.	6½d.	7d.
Excess over 7,200 miles per annum	3½d.	3¾d.	4d.	4¼d.

M.D.C. Circular No. 29 refers only to England and Wales. The position in Scotland has now been referred by Committee C to the Scottish Advisory Committee and it is understood that the matter will be receiving consideration shortly.

As a result of arrangements made by the Ministry of Health in conjunction with the Department of Health for Scotland and the Ministry of Health and Local Government, Northern Ireland, with manufacturers of fluorohydrocortisone, topical preparations of this substance may now be supplied on prescription.

Correspondence

Remuneration Claim

SIR,—Our Negotiating Committee is reported as saying that doctors will be astonished by the Minister's flat rejection of the claim for increased remuneration, and that an increase of not less than 24% was sought as from April 1, 1956, this being the amount by which the real incomes of general practitioners and of hospital medical staffs have declined in value since 1951. This is the first published information on the extent of our claim, and I believe that doctors will be astonished less by the rejection than by the moderation of the claim.

Those of us present at the Conference of Consultants and Specialists on June 20 last heard the opinion stated that the claim for increased remuneration should represent what we thought we might get, rather than what we thought we really deserved. Surely the published report of the claim indicates that even this moderate opinion was further watered down in the final preparation of the claim. This present claim appears to disregard the fact that nobody—not even the Ministry of Health—pretends that the financial recommendations of the Spens Reports were fully implemented in 1951. It does, however, arise from the continuing fall in the value of money since that year. The claim should therefore be presented in the form of a year-by-year statement, covering each year from 1951 to 1956, and setting out the amount by which our advisers estimate remuneration to have fallen short of true money values (in relation to the Spens recommendations) in each of the years.

Our Negotiating Committee is composed of men who, by virtue of their seniority, experience, and attainments, are, medically, second to none. It is, however, possible that these very attributes prevent them from ridding themselves of the traditional professional distaste for arguments over money matters. I am sure that the Committee is aware of the financial embarrassment existing in a high proportion of practitioners of every category, but I cannot help feeling that the profession's financial future would be better assured by the inclusion on the Negotiating Committee of a few men whose bellies have become filled with fire for want of more satisfying material.

Whether we like it or not, we have to face the fact that the problem of remuneration by the State will always be with us. The N.H.S. is still in its childhood, and it is our present responsibility and obligation to establish financial precedents which will enable the profession to survive and to attract suitable recruits from future generations. To succeed in this, we must prepare a just claim—and press it hard. Such a claim should be accompanied by a time-limit (of, say, three months) and the statement that, within that limit, the claim must either be met or be submitted to arbitration. With presentation of the claim, the united profession should state its intentions in the event of settlement not being reached within the time-limit.

Our claim must be almost unique in that we cannot give increased productivity or efficiency in return for its being met. We can, however, offer the satisfied loyalty and co-operation without which the N.H.S. cannot survive. Although patients can receive treatment without an N.H.S., that service cannot exist without the co-operation of doctors. As the Negotiating Committee has stated, we have a claim which in justice and in logic cannot seriously be challenged. The people of this country are not slow to recognize claims of this nature which are properly placed before them: in this respect, good public relations would be of great importance.

Finally, it is to be hoped that on this occasion the Negotiating Committee will not have to compete with secret diplomacy, and that it will refuse to entertain any offer which it cannot place before the profession.—I am, etc.,

Bristol. V. TORRY BAXTER.

SIR,—For those of us who face thirty years or more in the National Health Service the issue is simple. We must know the basis of our remuneration. Mr. Bevan, when Minister of Health, accepted the Spens report (subject to negotiations as to its implementation) as the yardstick (on December 1, 1948, in answer to a question from Sir Ernest Graham-Little in the House of Commons). If the present Minister does not now accept this as a premise, then we must withdraw our services from the N.H.S. and negotiate afresh before rejoining. I feel that the younger doctors will support me when I say that we must expect a redeployment of available funds to entitle us to a reasonable remuneration and stop this nonsense of running the N.H.S. on the sense of vocation of the medical profession.

I must couple this with the demand that we do away with the secrecy which has surrounded all negotiations with the Ministry on matters of pay. It is manifestly absurd that we, who are supposed to understand the most difficult and complicated problems in medicine, problems related to running our practices, and problems of Schedule D, should be considered by our own confrères incapable of following the progress of negotiations on our own pay. It may not be realized, but it is a fact, that the full Danckwerts Award and its detailed implications have never been published to the profession in an intelligible form. When it was announced by our spokesmen recently, in connexion with this present claim, that the net income of the average G.P. was £2,200, all expenses paid, the average doctor looked at his *actual* net income and laughed. This is very bad for our P.R.O., apart from making the doctor have to explain an impossible position to his friends, relations, and patients.

The way forward is plain. No secrecy and no quarter.—I am, etc.,

London, W.C.1. J. L. MCCALLUM.

SIR,—I have read with dismay of the blunt refusal by the Minister of Health to consider an increase in our pitifully small salaries.

Sir, the Association should act strongly, decisively, and at once. I consider that the time has come when no gentlemanly action should be called for, but that the medical staff in every hospital in the country should be ordered to boycott the National Health Service. There should be a general close-down of all the routine clinics and out-patient departments, and also stop all routine hospital admissions until such time as the salary dispute is settled well in our favour—yes, settled, not just under negotiation. I trust the Association will for once act immediately and strongly, and not miss this opportunity.—I am, etc.,

Manchester, 8 G. M. M. WATTS.

SIR,—The lack of wisdom of our policy of restraint has been underlined by the Government, and its futility underlined by Mr. Horner, of the Mineworkers' Union, who said that he could not control prices but he would see that the miners' wages kept pace.

May I suggest that the B.M.A. seriously consider a whole-time service as an answer to the many ills that affect us. The scheme, run at health centres, would be in shifts, 8 a.m. to 4 p.m., 4 p.m. to midnight, and a skeleton service from midnight to 8 a.m. The advantages to the doctor would be: (1) A longer working life. (2) Opportunity to work overtime and to do private practice in his spare time. (3) The profession would be tied to the cost of living and increases in pay would be automatic. (4) The younger men and women would have no worries about unemployment and the cream would be retained in this country, to the benefit of this country. (5) The doctor's wife, if she so wished, could go out to gainful employment. (6) No worries about locums.

The disadvantages to the doctor would be: (1) An increase in bureaucracy. All countries, however, are increasingly aware of this danger, even totalitarian countries—e.g., Poland, where it was given as an excuse for the Poznan riots. No doubt in this country it would be kept under control.

(2) The small minority of doctors who exploit their junior partners and/or assistants would have to return to general practice.

The advantages to the State would be that the drug bill could be cut by at least 50%. The disadvantages to the State would be: (1) The scheme would cost three times what the general practitioner service costs now. (2) There might be a decline in quality, as in all nationalized concerns, but that is the least of a planner's worries.

In any case, let us not permit the Government to use a whole-time scheme as a bogy with which to threaten us, but let us use it as a stick with which to beat them.—I am, etc.,

London, S.W.6. G. ROSEMONT.

SIR,—As usual, we appear to have received a polite "brush off." According to my morning paper the Minister states he cannot consider at the present time the request of the medical profession for the application of the betterment factor. The question arises, at what other time could he possibly consider it? We would have no grounds for making such a request had the value of money not deteriorated since 1951, so the implication appears to be that the *status quo* will remain indefinitely, however much the pound slides down in value.

The country as a whole is being asked to exercise restraint in its demands for wage increases, and I am sure that the medical profession sincerely subscribes to the wisdom of following such a request, but it should not be forgotten, as it is apparently by the Minister, that we are not asking for any advance on to-day's just income, but that our five-year lag should be rectified to bring us to that point at which we might reasonably be asked to exercise restraint in common with our luckier fellows.

Now, if ever, we must show firmness and unity in our dealings with the Minister.—I am, etc.,

Birkenhead. E. G. WATSON.

SIR,—In your leading article, "The Ministers' No!" (*Journal*, July 21, p. 144), you rightly declare that "all the profession is asking for is the fulfilment of contractual obligations accepted by the Government of the day in 1946 and 1948." It seems to me that this point cannot be too heavily stressed, yet few, if any, of the lay public seem to be at all aware of it. Why? We have a P.R.O. at Headquarters, and I believe that each Division appoints someone to deal locally with public relations. Are our spokesmen being deliberately muzzled by the whole press?—I am, etc.,

Launceston, Cornwall. DONALD M. O'CONNOR.

SIR,—What a wonderful example our medical pseudo-legislators give at Brighton of straining at gnats and swallowing camels.

Smoking undoubtedly does harm to the small number who have become sensitive. But why should the representatives of the largest medical body in the country seek more pay, when the obvious and only way for this country to survive is for every one of us to be content with our wages and work our best and hardest for the common good.—I am, etc.,

Birmingham, 14. J. FRASER KERR.

SIR,—I am almost stunned by the reply from the Government to our memorandum on remuneration as published in the *Supplement* (July 21, p. 71). The Government makes no mention of a meeting for discussion of what is a very vital question to so many. It seems that Spens is definitely repudiated by one side, and that side, in a way which could not be bettered by Mr. Stalin, requires only its own statement to make this incontrovertible. The other side is not asked if it agrees. In any case, agreement or the opposite have equally no weight.

The statement goes on, "Remuneration . . . must be determined . . . in the light of all relevant circumstances." Who is to determine what are relevant circumstances, and when? Why did no meeting with the Negotiating Committee take place, as the commonest courtesy would suggest? Surely no one higher up than a junior office boy could have compiled such nuclear material. I was neutral up till now, but not any longer. Conceit and intolerance could hardly be more naked.—I am, etc.,

Middlesbrough. J. DURIE.

SIR,—We, the undersigned medical practitioners, deprecate the attitude adopted by the Minister towards a responsible memorandum sent in by the profession. We desire the Negotiating Committee to press on with our claim with the knowledge that the profession is wholeheartedly behind it in any measure it may think fit to take, no matter how severe.—We are, etc.,

T. BRANDRETH.	A. HALL.	GUY PIMBLETT.
H. W. CHAMBERS.	D. J. HANDFORD.	A. E. RILEY.
ROBERT CLOUTING.	DENYS HORTON.	THOMAS SMALLHORN.
G. R. CUBITT.	D. LONSDALE.	C. E. A. THOMAS.
K. N. FOSTER.	R. G. NETHERY.	HOWARD WILSON.

Sleaford, Lincs.

General Practice To-day

SIR,—I have noticed the many articles and letters in your *Journal* which blame the N.H.S. for "bad" general practice. I have worked in general practice in the old private days and also under the N.H.S., and cannot see that general practice now is any worse than it ever was. It is generally admitted that lack of time to deal with individual cases is the great enemy of "good" general practice. The causes of this lack of time are to-day the same as they were 10 years ago: (1) (*a*) Lack of good records. Every minute taking notes of a patient will save many later on. (*b*) Not reading the patients' records through before treating them. Of course, some patients acquire such enormous dossiers that this is impossible, but it is well worth while occasionally to make a summary of these dossiers for quick reference. (2) Not making good use of: (*a*) adequate secretarial assistance, (*b*) the excellent district nursing service, (*c*) pathological services, both hospital and domiciliary, (*d*) mass *x*-ray units. (3) Bad organization: (*a*) Lack of a proper rota system to enable the G.P. to have adequate relaxation and keep fit for his job. (*b*) Being too mean to pay for adequate help and thus avoid tackling enormous surgeries on one's own to the detriment of the patient. As regards this district, the N.H.S. seems to have given a stimulus to the operation of rota systems which were never there before; and also to the taking on of partners and assistants.

Every G.P. needs the mental stimulus of some contact with hospital staffs and other G.P.s. I cannot agree, however, that it is necessary, in order to be successful as regards capitation payments, to over-use the consultant services. "Successful" as well as "good" general practice depends upon the amount of time, trouble, patience, and interest taken by the practitioner in each individual case. Failure in any of these qualities cannot be compensated by alteration in the general scheme of practice.—I am, etc.,

Wolstanton, Staffs ANNE M. TOMS.

SIR,—In 1953 I returned to general practice after an absence of seven years. On resuming work these were the changes I noticed most: (1) More diseases could be satisfactorily treated at home, thanks to antibiotics and other modern drugs. (2) Clinical pathology service freely available (it seems this is not so in all districts—it certainly should be). (3) Domiciliary consultations—their value to patient and G.P. cannot be overrated; I find each a postgraduate tutorial. These changes (not, of course, all directly due to the National Health Service) make it possible to treat in their homes patients who would otherwise have had to go to hospital, and make general practice more satisfying. A fourth change was the large increase in surgery attendances for trivial complaints. This was the only disagreeable

feature of general practice directly attributable to the National Health Service. If the G.P.'s status has been lowered I have not been conscious of it.

It sometimes looks as if observers like Dr. Alexander Hall (*Journal*, July 14, p. 57) compare the best of pre-1948 practice with the worst of present-day. Friends who did locums in pre-war industrial practices have macabre stories of what went on in the "good old days" (I myself did a locum in a practice of the "better sort," where no notes of any sort were kept). Dr. John Fry and others have shown what great scope there is in general practice to-day. As for the waiting-room crowded with patients with trivial complaints, I am sure we could do more to educate patients out of the bottle of medicine habit. Many of them, for instance, after the initial shock, are prepared to accept the idea that no medicine is needed for the common cold. It has often never been pointed out before.—I am, etc.,

Birmingham, 29. PATRIA ASHER.

Return of Goodwill

SIR,—I was much interested in Dr. H. M. R. Waddell's letter on the return of goodwill (*Supplement*, July 21, p. 73). As he says, the loss of the freedom of movement of doctors virtually imprisons a practitioner in one area for life, with incalculable disadvantages not only to his family and himself but to the community at large, by limiting medical experience. This is plainly a political matter. It arose in the first place as a piece of doctrinaire Socialism. What then can a Conservative Government do to counteract the evil?

I do not think it is possible now to restore the former procedure, when practices were bought and sold through agencies and so on. I have, however, given much thought to the matter, and offer the following solution. Let practices be bought and sold through the Ministry of Health. For example, the Ministry, or its appointed agents, could maintain a list of available practices, and any young doctor would simply buy one as before. Similarly, an established doctor wishing a transfer could use his compensation money as part of the price, as also his present practice's value.

I believe the details of such a scheme could easily be worked out by any Minister who had the welfare of doctors at heart. The beauty of it from a political point of view is that the Government could obtain a percentage of the purchase price, etc., as agents. The doctors could thus move about the country as they wished, and the Government would get a rake-off. And so everybody would be happy. What about it, Mr. Turton?—I am, etc.,

Herne Bay. C. T. H. WHITESIDE.

Merit Awards

SIR,—At the Annual Representative Meeting in Brighton a resolution was passed requesting that "Council consider the desirability of abolishing the merit award scheme for members of hospital staffs . . . and replacing it by a system allowing for responsibility payments" (*Supplement*, July 14, p. 41).

Many consultants not conversant with B.M.A. procedure, of whom I am one, do not understand the competence of the A.R.M. to make such a recommendation. There is a general impression among many that I have spoken to that such matters are the concern of the Central Consultants and Specialists Committee, an autonomous body that does, in fact, represent the consultants and specialists; and not an amorphous collection of delegates, many of whom are in no position to form a judgment on a matter which does not affect them; who do not represent any organized collection of consultants; and who may have no mandate to pronounce in the way that they do.

And what is the next step? Presumably, Council must proceed to act upon the motion? Is there any likelihood of its consulting the Central Consultants and Specialists Committee before determining its policy, or any compulsion to abide by what that committee shall decide?

I am not concerned at the moment with the merits or demerits of the hospital staff award scheme, but only with the steps by which official policy is arrived at. The publication of information on the matter might help to allay some general ignorance and disquiet.—I am, etc.,

Brighton. H. G. MCGREGOR.

Fees for Private Operations

SIR,—I think it is high time that the schedule of fees for private operations in pay-bed accommodation in hospital was revised or abolished altogether. Except for certain slight increases for long-stay cases and specialized cases, like thoracic operations, this schedule is the same as it was in 1948.

The other alternative, of course, would be for surgeons to become once more members of the Hairdressers Union, and revert to being barber-surgeons, as we have been told in the newspapers of a well-known hairdresser being paid £2,500 to fly the Atlantic, complete with 18-carat gold scissors, to do a small surgical operation (not mentioned in the National Health Service schedule of fees) on the hair of a well-known blonde film-star.—I am, etc.,

Newcastle, Staffs. G. GORDON CROWE.

A Pathologist's Pay

SIR,—I have discontinued my membership of the B.M.A., as I have come to the conclusion that it fails to act in the best interests of the profession. My reasons for relinquishing my membership were not entirely due to the fact that I am no longer engaged in the medical profession, and I am willing to rejoin if I can be convinced that the Association is making some effort to help my many friends who are living in straitened circumstances.

I wished to become a pathologist when I qualified in 1952, but found that at no time in the ensuing seven or eight years was I likely to earn £1,000 per annum. I therefore entered the family business, where I pay a good representative over £1,000 per annum, plus car, plus expenses. Our travellers have no technical training and their only qualification is that they can sell our goods. It seems altogether wrong that if I were to offer them the salary of a doctor with higher qualifications working as a registrar they would leave forthwith.

Most young men qualifying in medicine desire to get married, have a home, a family, security, and freedom from debt. Can you say that the work of your Association has brought them that? What hope have they got of obtaining luxuries like a car, a television set, or a public school education for the children? I would have preferred to earn my living in my profession, but I wished to marry and felt that I owed my family a minimum standard of living not obtainable as a registrar and certainly beyond the scope of a house officer. Worse still, there was precious little hope for the future, for even if I had higher qualifications what chance had I of obtaining a consultant's post?

Do not think that I am grumbling, for I am happy with my lot. I feel strongly that those in the profession whose position is secure and remunerative are continuing to be favoured at the expense of those who have little in the way of remuneration or security. The purpose of this letter is to judge whether the B.M.A. is worth supporting, and my conclusions are that it has been weighed in the balance and found wanting.—I am, etc.,

Manchester, 3. A. S. NICHOLAS.

Crash Helmets

SIR,—Our representatives at Brighton appear to have allowed an amusing masquerade to blind them to the dangers of enforcing the use of crash helmets by motor-cyclists. The loss of valuable young lives in motor-cycle accidents is appalling. No one doubts that efficient crash helmets may reduce this loss, and Mr. A. Lawrence Abel is to be congratulated on his efforts (*Supplement*, July 14, p. 27) to have

purchase tax removed from them ; any step that encourages their wider use should be supported. But to ask for legislation to enforce their use is to seek to limit the freedom of the individual to an unwarrantable degree.

Freedom to endanger one's fellows must be limited, but to limit a man's right to risk his own neck is another matter. It is true that a motor-cycle accident may involve others beside the motor-cyclist, but a crash helmet protects only the wearer and not his victims. Indeed, Mr. Abel said himself that a motor-cyclist so protected would feel safer and so take more risks. This, of course, increases, not diminishes, the danger to other road users.

Allow the principle that men must be protected against themselves, and what follows ? The prohibition of rock-climbing in our mountains ? Such a course has already been suggested in the press. Will some doctor stamp on to the rostrum next year in nailed boots and with a coil of rope around his shoulders to jolly his colleagues into urging a ban on rock-climbing ? Every summer swimmers are drowned. Which of our Representatives will appear on the platform next year wearing bathing trunks and water-wings, in order to stop this shocking waste of young lives ? It is the nature of the State to limit ever more narrowly the freedom of the individual. Such liberties as remain must be constantly fought for. Any least encroachment, however trivial, however well meant, must be resisted. A great deal was said at the A.R.M. about liberty and freedom for our profession. We should save our energies for the struggles that these involve instead of urging restrictions for others and the creation of new classes of offences.

The arguments urged in favour of crash helmets can be urged with equal validity for safety belts in cars. Perhaps safety belts in cars would be a good thing. But compulsory ones ? And a policeman to stop your car to see that you have the belt fastened ? And a fine if you haven't ? Mr. Abel deserved his laugh ; not the vote.—I am, etc.,

Ulverston, Lancs. T. I. WATKINS.

Centralizing Pathological Services

SIR,—Bureaucrats in hospital administration are trying to centralize the pathological services in large laboratories which are staffed by several pathologists and serve several hospitals. It is claimed that this increases efficiency and reduces costs. Neither of these, I believe, result, but only harm to the service and to the profession.

Highly specialized tests, such as the W.R., animal inoculation, virology, and pregnancy tests must be sent to special centres ; but I am convinced that, as far as practicable, the pathological work of a hospital should be done on the premises. A single large centralized laboratory serving several hospitals makes an artificial and harmful division between clinical medicine and pathology. It reintroduces all the defects of "postal pathology" which have been so widely condemned. Postal pathology is bad for the pathologist, because, if he is to function as a consultant medical man, he must be in constant touch with his clinical colleagues and the wards. The pathologist who does not visit the wards is like the clinician who never visits the post-mortem room ; from being a medical man he soon degenerates into a technician living in an ivory tower remote from the day-to-day problems of living pathology ; he cannot easily see the more interesting or puzzling of the patients ; he ceases to regard them as human beings but only as cases ; he automatically churns out reports on patients he rarely sees to clinicians he seldom meets ; his reports are wooden, his interpretations relatively valueless. A laboratory sited away from the hospital is bad for the pathologist and for the clinician ; if the pathologist is any good his clinical colleagues will value opportunities for discussing their problems, to their mutual advantage. This desire to discuss problems with the pathologist is more marked among the junior medical staff and among the young consultants, who are increasingly laboratory-minded and dependent.

Surgeons recognize the importance of close contact between the clinician and pathologist such as is only possible if the laboratory is sited in the hospital it serves. This is exemplified in the new regulations for the F.R.C.S.(Eng.) for overseas students which lay down that the candidate be asked for details of "the opportunities for close liaison with the pathological department of the hospital in which he has worked" (*Journal*, May 12, p. 1095). There can be no close liaison if the laboratory is sited miles from the hospital.

A laboratory away from the hospital means delay in receiving the specimens and in sending reports ; delays mean slower turnover of patients and so inevitably increased costs. It is a tragic commentary on our profession that a lay Minister of Health upgraded the pathologist, making him equal to his clinical colleagues ; now the bureaucrats of the profession are doing their utmost to degrade him from the position of consultant medical man to that of a back-room laboratory worker. This must, I suggest, inevitably result in great harm to the status of the pathologist and to medicine in general.—I am, etc.,

Worthing. R. AIDIN.

Credit Due

SIR,—In the *Supplement* of July 14, in the report of the A.R.M., sub-title "Cremation Certificates" (p. 47), you report "Dr. R. E. G. Smith, who is making his twenty-first appearance as a representative at the A.R.M. . . ." This should read Dr. E. Bertram Smith. As Dr. E. Bertram Smith has been such a loyal and devoted supporter of the B.M.A. for so many years, and as I am a comparative newcomer, I do feel that the credit should be given in the right quarter.—I am, etc.,

Nottingham. GORDON SMITH.

Association Notices

ARMED FORCES COMMITTEE

Election of Direct Representatives

The constitution of the Armed Forces Committee provides for a retired medical officer from each of the following branches of the Services to be elected to it:

Medical Branch, Royal Navy.
Medical Branch, R.N.V.R.
Royal Army Medical Corps.
R.A.M.C. (T.A. or A.E.R.).
Medical Branch, Royal Air Force.
Medical Branch, R. Aux. A.F. or R.A.F.V.R.

There are six vacancies to be filled for the 1956–7 session. Members of the Association, at present serving on the active lists of each of the above branches and corps, are invited to nominate a retired medical officer (who must also be a member of the Association) of their own branch or corps as a candidate for election.

Nominations, on forms to be obtained from me, must reach me by Monday, September 3. Voting papers will be issued where more than one candidate is nominated.

A. MACRAE.
Secretary.

Meetings of Branches and Divisions

SOUTH-WESTERN BRANCH

The 111th annual meeting of the South-western Branch was held at Newquay on June 9. Lunch was provided at the generous invitation of the President-Elect, Air Vice-Marshal T. C. St. C. Morton, at the St. Rumons Hotel. More than a hundred members and their ladies were present.

At the annual meeting in the afternoon the outgoing President, Mr. K. G. W. Saunders, invested Air Vice-Marshal Morton with the President's Badge. The President then delivered his address under the title of "Tropical Disease at Home and Abroad." After an interval for tea Dr. Robert Forbes gave a spirited and witty speech entitled "Medical Litigation."

Dinner in the evening was attended by a distinguished company of professional associates and more than a hundred members and their friends.

Afterwards Dr. Michael Ward gave an illustrated lecture on the Everest Expedition, to which he was medical officer.

The social arrangements were carried out by Dr. Eric Townsend, honorary secretary of the Cornwall Division, to whom the thanks of the Branch were given for the highly successful meeting.

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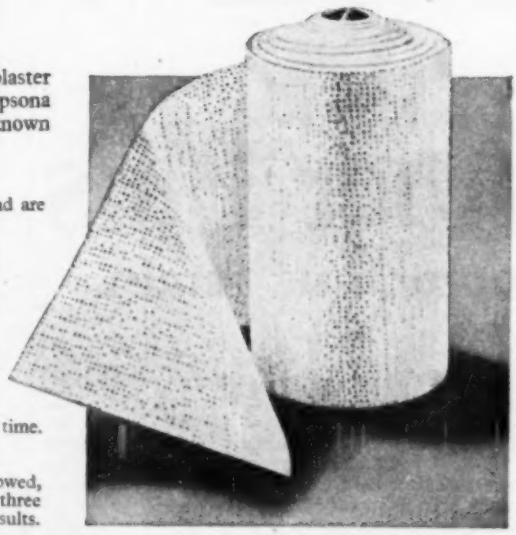

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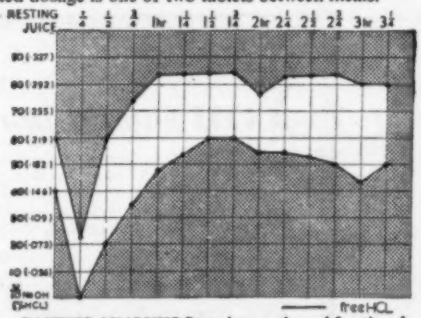
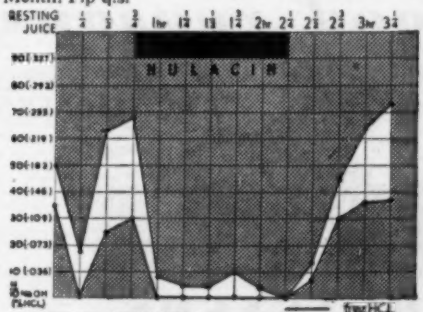


GASTRIC ANALYSIS Superimposed gruel fractional test-meal curves of five cases of duodenal ulcer



GASTRIC ANALYSIS Same patients as in Fig. 1, two days later, showing the striking neutralizing effect of sucking Nulacin tablets (3 an hour). Note the return of acidity when Nulacin is discontinued

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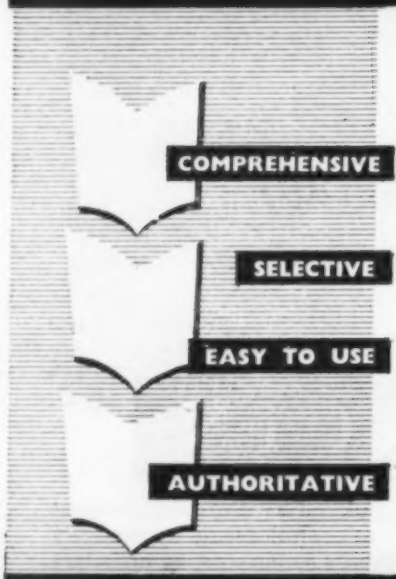

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A fully registered medical practitioner who is liable for National Service must obtain deferment of recruitment in writing from the Central Medical Recruitment Committee or (in Scotland) the Scottish Central Medical Recruitment Committee before accepting any civilian appointment.

The position of provisionally registered medical practitioners who are liable for National Service has been made clear in a notice sent to them by the Ministry of Labour and National Service.

SALARY SCALES OF JUNIOR GRADES OF HOSPITAL MEDICAL STAFF

Registrar Grades, Whole-time

(*a*) *REGISTRAR:* Posts obtained normally not less than two years after registration as a medical practitioner and held normally for two years: £850 per annum in the first year; £965 per annum in the second and any subsequent years.

(*b*) *SENIOR REGISTRAR:* Posts obtained normally not less than four years after registration as a medical practitioner and held normally for four years; £1,100 per annum in the first year; £1,200 per annum in the second year; £1,300 per annum in the third year; £1,400 per annum in any subsequent years.

Other Grades, Whole-time

(*a*) *HOUSE OFFICERS:*

(i) *Provisionally registered medical practitioners:* £425 per annum for the first post held; £475 per annum for the second and all subsequent posts held;

provided that the employing authority (subject in the case of a Hospital Management Committee to the consent of the Regional Hospital Board) shall have discretion to determine that the remuneration of any officer holding his first post in the National Health Service as a House Officer shall be £475 per annum if they are satisfied that the officer has held at least one hospital post outside, of not less than six months' duration, involving clinical responsibilities equivalent to those of house posts in the National Health Service and supervised by appropriate specialist staff.

(ii) *Fully registered medical practitioners:* £525 per annum for any post held;

provided that in exceptional circumstances, subject to the consent of the Minister, this rate may be exceeded by up to £50 per annum where a post cannot be filled otherwise.

In each case under sub-sections (i) and (ii) above, a deduction of £125 per annum in respect of board and lodging and other services provided shall be made and each post shall be tenable for six months.

(*b*) *SENIOR HOUSE OFFICER:* Posts obtained normally not less than one year (in Scotland, two years) after registration as a medical practitioner and normally held for one year only: £745 per annum.

(*c*) *JUNIOR HOSPITAL MEDICAL OFFICER:* Officers who have held house appointments but who are not Registrars and who have less responsibility than other hospital officers of non-consultant status: £775 (for an officer appointed not less than one year after full registration as a medical practitioner) by £50 to £1,075 per annum.

ALL NATIONAL HEALTH SERVICE HOSPITAL APPOINTMENTS ARE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF SERVICE OF HOSPITAL MEDICAL STAFF

Those intending to apply for resident appointments in the Registrar grades are recommended to make inquiries with regard to the deductions proposed for board and lodging at the time of submitting their applications, where this is not stated in the advertisement.

(25/1/55)

CLASSIFICATION

and order of appearance

Practices
Assistantships
Trainee General Practitioners
Locums
Situations (Medical)

APPOINTMENTS

including pre-registration under appropriate specialty headings, as follow:

Anaesthetics	**Ophthalmology**
Bacteriology	**Orthopaedics**
Casualty	**Paediatrics**
Chest and Tb.	**Pathology**
Dental	**Physical Medicine**
E.N.T.	**Psychiatry**
Geriatrics	**Radiology**
Infectious Diseases	**Radiotherapy**
Medicine	**Surgery**
Neurology	**Thoracic Surgery**
Neurosurgery	**Urology**
Obstetrics and Gynaecology	

in the following order: Consultants, S.H.M.O.s, Registrars, Clinical Assistants, J.H.M.O.s, Senior House Officers, House Officers, Pre-registrations.

Public Health	**Situations (Non-med.)**
Administrative	**Medical Illustrations**
Governmental	**Pharmacists, etc.**
Services	**Receptionists, etc.**
Industrial	**Consulting Rooms, etc.**
Republic of Ireland	**Accommodation**
Oversea	**Cruises and Tours**
University and Research	**Hotels**
Notices	**Miscellaneous**
Educational and Lectures	**Agents**
	Homes

Rates are shown on the Inside Back Cover

MEMBERS ABROAD. Copies of vacancies advertised in the *Journal* can be sent by AIR MAIL. The minimum cost is 3s. per week, which covers up to three separate headings: additional headings 1s. each.

Please state type of vacancy and remit to the Advertisement Director, B.M.J.

PRACTICES (Executive Councils)

For vacancies (except those in Scotland) apply on Form E.C.16A, obtainable from the Executive Council. Mark envelope "Vacancy."

LIVERPOOL (Scotland Division)

Applications invited for a medical practice (Urban). Death vacancy. List approximately 3,200. Surgery accommodation available. Apply on Form E.C.16A to the undersigned, not later than Thursday, August 16, 1956.—J. G. Doncaster, Clerk, Liverpool Executive Council, 36, Princes Road, Liverpool, 8. (6401)

LIVERPOOL (Speke)

Applications invited for a medical practice (Urban). Doctor resigning. List approximately 3,500. Accommodation on the Estate will be available. Apply on Form E.C.16A to the undersigned, not later than Thursday, August 16, 1956.—J. G. Doncaster, Clerk, Liverpool Executive Council, 36, Princes Road, Liverpool, 8. (6402)

PRACTICES (Exchange)

EXCHANGE, EASILY RUN SCOTTISH PRACTICE pleasant residential area, income £3,000 (increasing), for London or Home Counties.—Box PR.1167, B.M.J.

PRACTICES (Wanted)

OPHTHALMIC PRACTICE WANTED, OR practice of ophthalmologist already retired. W.1 area preferred.—Box PR.674, B.M.J.

ASSISTANTSHIPS VACANT

Advertiser A.653 wishes to thank all applicants. The position is now filled.

Wanted, Assistant. Two General Practitioners with combined list of 4,000; colliery district; ultimate view will be eventually considered.—Box A.1163, B.M.J.

Assistant required immediately, outdoor, for three partners. Liverpool. Ample off-duty.—Box A.1092, B.M.J.

Assistant required. Nottingham area. Unfurnished house provided. Good prospects. Salary by arrangement.—Box A.1162, B.M.J.

Woman Assistant wanted, Lancashire coast. State experience, age.—Box A.1166, B.M.J.

ASSISTANTS AVAILABLE

Doctor, own car, free week-ends, Birmingham area.—Box A.1158, B.M.J.

Jewish doctor (29), M.B., Ch.B., Hospital, G.P. experience, available surgeries London area.—Box A.1157, B.M.J.

Permanent Assistantship desired, October, near London or South, with accommodation preferred. Married. Protestant. **Car owner, 28. M.B., Ch.B.,** D.R.C.O.G., Casualty, R.N.V.R., H.P., Fevers. Completing traineeship.—Box A.1051, B.M.J.

Polish-born, 39, car, married. Excellent references. 6 years G.P. View.—Box A.872, B.M.J.

TRAINEE GENERAL PRACTITIONERS (Vacant)

Wanted, end of August, Trainee (male), in pleasant South Coast resort. Usual salary and car allowance.—Box T.1055, B.M.J.

Group practice near London invites applications for Trainee.—Franklin, 40, Midfield Way, St. Pauls Cray, Kent. Footscray 3984.

Trainee, male or female, pleasant North London suburb, for September. Live out. Car necessary.—Dr. Herriott, 2, Maidstone Road, N.11.

Trainee required, partnership practice, male or female. Accommodation single practitioner.—Apply Dr. Goide, 12, Nesta Road, Woodford Green, Essex. Tel.: Buc. 5072.

Trainee required immediately, rural practice. Cottage available. Own car.—Dr. Heylings, Scorton, Richmond, Yorks. Old Catterick 20.

Trainee required immediately, outdoor, for three partners. Liverpool. Ample off-duty.—Box T.1093, B.M.J.

Trainee required, partnership S.E.27.—Box T.1151, B.M.J.

Trainee, single. Car owner and post national service preferred. Busy partnership, pleasant Midland town. References please. Excellent opportunity.—Box T.1159, B.M.J.

Trainee wanted October. Rural dispensing practice, S.E. Coast. Salary £775, car £150. Live out. Ample study time.—Box T.1152, B.M.J.

Two Women Practitioners want Trainee (woman). Altrincham, Cheshire.—Box T.1156, B.M.J.

LOCUMS (Vacant)

Wanted, Locum, with car, live in, from about August 13 to September 29.—Drs. W. and J. B. Core, Doncaster Road, Rotherham.

Locum required, S.W. London, August 23, three weeks. Own car.—Box L.1153, B.M.J.

Locum required, August 27 to September 8. Outdoor; car owner. South-West London.—Box L.1169, B.M.J.

Locum required for partnership practice from August 13 for 6 weeks. Own car desirable.—Dr. Siddons, Trosnant Lodge, Pontypool. Tel. 109.

Locums (Vacant)—contd.

Locum required, partnership East Riding of Yorkshire, September 2 to October 6.—Box L.1160, B.M.J.

Locum, September 24 to 29, Notts practice, one partner remaining. Own car preferred.—Dr. Gray, Bolsover Street, Hucknall, Notts.

Practitioners desiring to act as Locum Tenens for short or long periods are invited to communicate with us. Vacancies in all parts.—Percival Turner Medical Agency, 25, Maiden Lane, London, W.C.2.

South London Hospital, Clapham Common, S.W.4

Locum R.M.O.
required from August 20, 1956. Senior House Officer grade. Apply to Secretary. (6308)

Bedford General Hospital (439 beds)

Locum Anaesthetic Registrar
required three months commencing September or shorter period. Salary £17 10s. per week. Applications and testimonials, to Group Secretary, Bedford Group H.M.C., 3, Kimbolton Road, Bedford. (6031)

Bournemouth & East Dorset Hospital Management Committee

Christchurch Hospital

Locum S.H.O. (Paediatrics)
required. September 2 to 15, 1956. Applications to Hospital Secretary. (6296)

Bournemouth & East Dorset Hospital Management Committee

Christchurch Hospital, Christchurch, Hants

Locum Medical Registrar
required for 3 months from August 12, 1956, at the above Hospital of 259 beds (including 79 Acute Medical, 34 Paediatrics, 6 Chest Diagnostic and 140 Chronic Sick). Applications, giving details of age, experience and nationality, should be sent to the Group Secretary, H.M.C. Office, Royal Victoria Hospital, Gloucester Road, Boscombe, immediately. (5963)

Chelmsford Hospital Management Committee, London Road, Chelmsford

Locum Medical Registrar
required for period August 28 to September 25. Applications, with two recent testimonials, to the Secretary. (6336)

General Hospital (200 beds)

Locum Tenens, Full-time, Surgical Registrar
required for period October 1 to 14, both dates inclusive. Applications in writing to George A. Paines, Group Secretary, Croydon Hospital Management Committee, General Hospital, London Road, Croydon. (6337)

General Hospital (200 beds)

Locum Tenens Orthopaedic Registrar
required at General Hospital for period October 1 to 13, 1956, inclusive. Applications in writing to G. A. Paines, Group Secretary, Hospital Management Committee, General Hospital, London Road, Croydon. (6298)

Lancaster House Chest Clinic

Locum Senior Registrar
required for four weeks commencing August 20. Previous experience in chest work essential. Accommodation available if required. Apply immediately to the undersigned.—J. C. Field, Secretary, Management Committee Offices, General Hospital, Rochford, Essex. (6523)

Leeds Regional Hospital Board

Short-term Locum Tenens
Appointments in the Registrar grade are constantly available at hospitals in the area of the Board, particularly in the specialities of anaesthetics, general medicine, general and orthopaedic surgery and psychiatry. Interested practitioners suitably experienced should communicate with the Secretary, Joint Registrars Committee, Park Parade, Harrogate. (5281)

Lincoln, County Hospital

Locum Casualty Officer
required for a period of approximately one month from August 20, 1956. Salary in accordance with the scale laid down for a Locum J.H.M.O. Applications to be forwarded to Group Secretary. (6297)

Medway and Gravesend Hospital Management Committee

Locum Obstetric & Gynaecological Registrar
Required at All Saints Hospital, Chatham, for period September 3 to December 1, 1956. Salary £17 10s. per week. Apply, with full details, including names of two referees, to Group Secretary, 20, Star Hill, Rochester, Kent. (6468)

Newport, St. Woolos Hospital (379 beds)

Locum S.H.O. or Registrar (General Surgery)
required. Non-resident. Salary £14 10s. or £17 10s. weekly respectively. Write, quoting two referees, to T. A. Jones, Group Secretary, 64, Cardiff Road, Newport, Mon. (6338)

Rochford, Essex, General Hospital

Locum Surgical Registrar
required from September 1 to 16, 1956. Post resident and married accommodation available if required. Applications, etc., to the undersigned as soon as possible.—J. C. Field, Secretary. (6410)

St. Albans City Hospital, St. Albans, Herts (384 beds)

Locum Tenens Anaesthetic Registrar
resident, required for the period August 13 to 26 inclusive. Applications to Secretary, Mid-Herts Group Hospital Management Committee, Bleak House, Catherine Street, St. Albans. (6309)

REPLIES TO BOX NUMBER ADVERTISEMENTS

The names and addresses of advertisers using box numbers are held by us in strict confidence and cannot be disclosed. Applications should be separately enclosed and clearly addressed :

Box No. .....
British Medical Journal,
B.M.A. House,
Tavistock Square, W.C.1.

All communications are forwarded to advertisers under plain cover.

It is not possible for this office to accept telephone messages for relay to advertisers.

St. Albans City Hospital, St. Albans, Herts (384 beds)

Locum Tenens Casualty Officer
(Registrar grade) required for the period September 1 to 16 inclusive. Applications to Secretary, Mid-Herts Group Hospital Management Committee, Bleak House, Catherine Street, St. Albans. (6310)

Sheffield Regional Hospital Board

Locum Senior Casualty Officer
required at Royal Infirmary, Doncaster, August 20 to September 3. Remuneration 31½ gns. per week. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6339)

Sheffield Regional Hospital Board

Locum (Maximum part-time)
for the Consultant Orthopaedic Surgeon for Rotherham and Worksop Hospitals from August 11 to 28. Remuneration according to status. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6340)

Sheffield Regional Hospital Board

Locum Resident Registrar (Obstetrics and Gynaecology)
required immediately at Kilton Hospital, Worksop. Remuneration £17 10s. per week. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6341)

Sheffield Regional Hospital Board

Locum for maximum part-time Consultant Anaesthetist
required immediately until September 9, 1956, for Grimsby and Louth. Remuneration according to status. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6342)

Sheffield Regional Hospital Board

Locum Medical Registrar
required at City General Hospital, Sheffield, from September 24 for approximately 10 weeks. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6343)

Sheffield Regional Hospital Board

Locum Resident Registrar (Orthopaedics)
required Scunthorpe and District War Memorial Hospital for period August 27 to September 23. Remuneration £17 10s. per week. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6344)

Sheffield Regional Hospital Board

Whole-time Locum Radiologist
required for the City General Hospital, Sheffield, and other hospitals in the area until August 26, 1956. Salary according to status. Apply Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6345)

Sheffield Regional Hospital Board

Whole-time Locum Assistant Radiologist
required September 1 for the Derbyshire Royal Infirmary. Remuneration according to status. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, naming two referees. (6346)

Slough, Upton Hospital

Locum Senior Surgical Registrar
required, August 27 to September 17. Applications, with names of two referees, to Secretary. (6281)

Stockport and Buxton Hospital Management Committee

Applications are invited for the post of
Locum Registrar in Anaesthetics
which is now vacant. The main duties will be in the hospitals in this Group with some duties in the Macclesfield & District H.M.C. Group. Applications, stating age, experience and qualifications, together with copies of two testimonials, to be addressed to the Secretary, Stockport and Buxton H.M.C., 59B, Shaw Heath, Stockport. (6438)

Stratford-on-Avon Hospital (163 beds)

Locum Casualty Officer (J.H.M.O.)
required from August 26 for period of four weeks. Apply Hospital Secretary. (6282)

West Herts & St. Paul's Hospitals, Hemel Hempstead, Herts

Locum Anaesthetist, S.H.M.O.
required. Applications, giving two names for reference, should be sent to the Secretary, West Herts Hospital, Hemel Hempstead, as soon as possible. (6174)

Worthing Group Hospital Management Committee

Worthing Hospital, Lyndhurst Road, Worthing

Locum Tenens Medical Registrar (resident)
required for August 1956. Applications, stating age, qualifications, nationality and experience, with copies of two recent testimonials, to be forwarded to the Hospital Secretary immediately.—A. V. Oakton, Group Secretary. (5999)

SITUATIONS (Vacant)

The Medical Defence Union

Applications are invited from registered medical practitioners, not exceeding 40 years of age, for appointment as an
Assistant Secretary
to the Medical Defence Union. The salary scale will range from £1,750, rising by annual increments of £50 to £2,000 per annum, and the successful applicant will be placed at a point on that scale according to his experience and qualifications for the appointment. The practitioner selected will be required to submit to a medical examination, and to contribute to the Union's superannuation fund. Applications (12 copies), stating age, qualifications, and medical experience, together with the names of three persons to whom reference can be made for further information, should reach the Secretary, The Medical Defence Union, Tavistock House South, Tavistock Square, W.C.1, not later than August 25, 1956. (6220)

SITUATIONS (Wanted)

Cambridge Graduate, 28 years G.P., 3 years Army, 4 years Merchant Navy, requires a job other than G.P., in London or Southern England.—Box S.1170, B.M.J.

APPOINTMENTS

ANAESTHETICS

THE HOSPITALS FOR DISEASES OF THE CHEST

CONSULTANT ANAESTHETIST
Applications are invited for the post of Anaesthetist (consultant). Diploma of Anaesthetists essential. The duties in the first instance will be confined to one notional half-day on Saturday mornings in the Throat and Ear Department. Further information may be obtained on request. Applications (12 copies), stating date of birth, qualifications and experience, with names of three referees, to reach the undersigned not later than September 1, 1956.—Kenneth A. F. Miles, Secretary to the Board, Brompton Hospital, S.W.3. (5768)

LEEDS REGIONAL HOSPITAL BOARD

PART-TIME CONSULTANT ANAESTHETIST
(9 sessions per week) for duties in the Halifax area. Person appointed to reside in Halifax. Applications (12 copies) stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6000)

Anaesthetics—contd.

EASTERN REGIONAL HOSPITAL BOARD, Scotland

Anaesthetics
Stracathro Hospital, Brechin, Angus

Applications are invited for the whole-time post of **ANAESTHETIST (CONSULTANT)** at Stracathro Hospital, near Brechin (a general hospital of 676 beds) and Brechin Infirmary (a hospital of 106 beds, 50 general). Salary and conditions of service in accordance with National Agreement. Further particulars and forms of application from the Secretary to the Board, 430 Blackness Road, Dundee, with whom applications must be lodged not later than September 1, 1956. (6572)

WELSH REGIONAL HOSPITAL BOARD

CONSULTANT ANAESTHETIST

to serve Merthyr and Aberdare H.M.C. Based at Merthyr General Hospital. Visits to other hospitals in group and hospitals in neighbouring H.M.C. areas. F.F.A.R.C.S. essential. Successful applicant required reside within H.M.C. area. Optional whole-time/maximum part-time appointment. Twelve copies of application, naming three referees, to S.A.M.O., Temple of Peace, Cathays Park, Cardiff, within 21 days. (6502)

ARCHWAY GROUP HOSPITAL MANAGEMENT COMMITTEE

ANAESTHETIC REGISTRAR

for busy general hospital of 221 beds with Endocrine Unit (including thyroid surgery) in the Archway Group (New End Hospital, Hampstead). Post recognized for D.A. Hospital may be visited by direct appointment. Application forms from, and returnable to, Group Secretary, 46, Cholmeley Park, N.6, by August 14, 1956. (6393)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

King Edward Memorial Hospital, Ealing, W.13

ANAESTHETIC REGISTRAR

whole-time, resident, required September 1, 1956. Staff includes Registrar and Senior House Officer, Anaesthetists. Post recognized for D.A. and F.F.A.R.C.S. examinations. Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Group Secretary, West Middlesex Hospital, Isleworth, by August 14, 1956. (6509)

ST. MARY ABBOTS HOSPITAL Marloes Road, Kensington, W.8

REGISTRAR IN ANAESTHETICS

Position based at St. Mary Abbots Hospital, but expected to work at other hospitals in Group if required. Post recognized for the D.A. Resident on nights on duty. Vacant October 17, 1956. Candidates may visit the hospital by arrangement. Applications (5 copies) to be submitted by August 17, 1956, on forms obtainable from, and returnable to, Group Secretary, 5, Collingham Gardens, London, S.W.5. (6538)

ST. THOMAS' HOSPITAL, London, S.E.1

SENIOR REGISTRAR
to the Department of Anaesthetics

For a period of one year in the first instance. Whole-time. Applications, naming two referees, to the Clerk of the Governors by August 31, 1956. (6492)

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Lambeth Hospital, Brook Drive, S.E.11

ANAESTHETIC REGISTRAR

required. The D.A. is not essential, but the hospital is recognized for both this Diploma and the F.F.A.R.C.S. Appointment is for two years, subject to review after twelve months. For forms of application apply (including stamped addressed envelope) to the Secretary, Lambeth Group Hospital Management Committee, Renfrew Road, S.E.11, to whom completed forms should be returned not later than August 18, 1956. (6347)

COVENTRY & WARWICKSHIRE AND GULSON HOSPITALS, Coventry

REGISTRAR, ANAESTHETICS

Experience specialty essential. Recognized F.F.A. Application forms from Group Secretary, Coventry & Warwickshire Hospital, Coventry, to be returned before August 13, 1956. Candidates may visit hospitals. (6348)

EAST ANGLIAN REGIONAL HOSPITAL BOARD

ANAESTHETIC REGISTRAR

Ipswich and East Suffolk Hospital. Recognized for D.A. and F.F.A. Appointment for one year, renewable for second year. Applications, stating age, experience and the names of three referees, to Board's Senior Administrative Medical Officer, 117, Chesterton Road, Cambridge, by August 13, 1956. Candidates invited to visit hospital by direct arrangement with H.M.C. Secretary at hospital. (6349)

IMPORTANT NOTICE

APPOINTMENTS

Medical practitioners are requested

not to apply

for any appointment specified in this notice or for any appointment under an authority referred to in this notice without first communicating with the Secretary of the British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1, or in the case of the Irish appointment, with the Medical Secretary of the Irish Medical Association, 10, Fitzwilliam Place, Dublin, or in the case of the South African appointment, with the Medical Secretary of the Medical Association of South Africa, 35, Wale Street, Capetown, to learn the views of the Association regarding the terms and conditions of service pertaining to the appointment :

COUNTY BOROUGH OF MIDDLESBROUGH

REPUBLIC OF IRELAND, PORTIUNCULA HOSPITAL, BALLINASLOE, CO. GALWAY
Visiting Staff.

GOVERNMENT OF CYPRUS

MINES BENEFIT SOCIETY, JOHANNESBURG.
Appointment of Urologist.

By Order of the Council,

A. MACRAE,
July 31, 1956. Secretary.

LIVERPOOL REGIONAL HOSPITAL BOARD

St. Catherine's Hospital, Birkenhead

Applications are invited for the post of **RESIDENT ANAESTHETIC REGISTRAR** with duties at the above hospital, which is recognized for the F.F.A., and D.A. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 18, 1956.—Vincent Collinge, Secretary to the Board. (6474)

MANCHESTER REGIONAL HOSPITAL BOARD

Applications invited for the post of **REGISTRAR IN ANAESTHETICS**

The main duties will be with the Stockport and Buxton H.M.C., with some duties in the Macclesfield and District H.M.C. Group. The post is recognized for the D.A. and F.F.A.R.C.S., and would suit a candidate wishing to study for higher qualification. Applications, stating age, qualifications, and experience, together with copies of two testimonials, to be addressed to the Secretary, Stockport and Buxton H.M.C., 59B, Shaw Heath, Stockport. (6414)

NORTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the post of **SENIOR REGISTRAR in Anaesthetics** on the Staffs of the Aberdeen General Hospitals and the Aberdeen Special Hospitals. Candidates preferably should hold a higher qualification in Anaesthetics. Salary is within the scale of £1,100 to £1,400 per annum. Terms and conditions are as laid down for Hospital Medical and Dental Staff (Scotland). Applications, together with the names of two referees, should be lodged by August 25, 1956, with the Secretary, 1, Albyn Place, Aberdeen, from whom further particulars may be obtained. (6108)

SHEFFIELD REGIONAL HOSPITAL BOARD

Nottingham General Hospital (449 beds) (Recognized for the F.F.A.R.C.S.)

WHOLE-TIME RESIDENT OR NON-RESIDENT REGISTRAR (Anaesthetics)

required. Appointee will be one of a team of four who also cover Nottingham Hospital for Women and Nottingham Children's Hospital on a three-monthly rota. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 13, 1956, giving age, nationality, present and previous appointments (with dates), naming three referees. (6351)

OXFORD REGIONAL HOSPITAL BOARD

ANAESTHETIC REGISTRAR

to the Swindon Group of Hospitals. Duties will be mainly at the Victoria Hospital (96 beds). The post is recognized for the D.A. and F.F.A.R.C.S., and provides good experience. Residential accommodation for a single person is available. Applications on forms obtainable from the Secretary, Registrar Committee, 43, Banbury Road, Oxford, should reach him by August 25, 1956. (6311)

SHEFFIELD REGIONAL HOSPITAL BOARD

Derbyshire Royal Infirmary (416 beds) (Post recognized for D.A.)

WHOLE-TIME RESIDENT REGISTRAR (Anaesthetics)

required. Appointment for one year in first instance. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 13, 1956, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (6350)

SHREWSBURY GROUP & ROBERT JONES AND AGNES HUNT ORTHOPAEDIC HOSPITAL

REGISTRAR, ANAESTHETICS

Resident/Non-resident. Recognized for D.A. and F.F.A.R.C.S. Duties mainly in Shrewsbury Group. Candidates may visit hospitals. Application forms from Group Secretary, Royal Salop Infirmary, Shrewsbury, to be returned before August 13, 1956. (6352)

THE UNITED SHEFFIELD HOSPITALS

Applications invited for the post of **ANAESTHETIC REGISTRAR**

Post vacant November 1, 1956. The successful candidate will be required to work in any of the Units of The United Sheffield Hospitals. Applications, with the names of three referees, should be sent not later than August 11, 1956, to the Chief Administrative Officer, The United Sheffield Hospitals, West Street, Sheffield, 1. (6172)

SOUTH SHIELDS DISTRICT HOSPITAL MANAGEMENT COMMITTEE

RESIDENT ANAESTHETIST
(J.H.M.O. or S.H.O. Grade, according to experience)

required for duty within group, but principally at Ingham Infirmary and General Hospital, South Shields. Hospitals in group recognized for F.F.A.R.C.S. and local facilities available for post-graduate duty. Married or single accommodation available. Applications to Group Secretary, Ingham Infirmary, South Shields. (6510)

BERMONDSEY & SOUTHWARK HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER, Anaesthetics

required at St. Olave's Hospital, Lower Road, Rotherhithe S.E.16. Salary £745 per annum, appointment initially for a period of one year from September 1, 1956. Post recognized for D.A. and F.F.A.R.C.S. Applications, with full details, and names of two referees, should be sent within one week of advertisement appearing to the Secretary at above address. (6485)

NELSON HOSPITAL Kingston Road, Merton, S.W.20

RESIDENT ANAESTHETIST
(Senior House Officer Grade)

Applications, stating age, experience and qualifications, with copies of testimonials, and the name of one referee, should be sent to the Group Secretary, St. Helier Hospital, Carshalton, Surrey. (6353)

NORTH MIDDLESEX HOSPITAL Edmonton, N.18

RESIDENT ANAESTHETIST
(Senior House Officer)

required for September 15. Appointment for one year. Hospital is recognized for training for D.A. and F.F.A. R.C.S., and offers a wide experience in anaesthetics (over 10,000 operations a year). Applications, stating age, nationality, qualifications, experience, with copies of recent testimonials and/or names of two referees, to Secretary of Hospital by August 14. (6515)

WANDSWORTH HOSPITAL GROUP

St. James' Hospital, Balham, S.W.12

SENIOR HOUSE OFFICER (Anaesthetics)

required from August 1. (Locum basis August 1 to 13, permanent appointment commencing August 14.) Post recognized for D.A. and F.F.A.R.C.S. Applications, stating age, qualifications, experience and two referees, to Group Secretary, at above address. (6153)

IMPORTANT : All intending applicants should read the revised NOTICE at the top of page 17

Anaesthetics—(contd.)

THE ROYAL FREE HOSPITAL GROUP

SENIOR RESIDENT ANAESTHETIST

Applications are invited for the post of Senior Resident Anaesthetist. Applicants must be registered medical practitioners. The appointment is for six months from October 1, 1956, with duties at the North Western Branch and Hampstead General Hospital. Salary in accordance with the Ministry of Health scale for Senior House Officers. Application forms may be obtained from the Secretary, The Royal Free Hospital, Gray's Inn Road, W.C.1, to whom they should be returned not later than August 26, 1956. (6405)

BIRMINGHAM ACCIDENT HOSPITAL
Bath Row, Birmingham, 15

RESIDENT ANAESTHETIST (S.H.O.)

There are 3 Consultant Anaesthetists and training is given in modern methods of anaesthesia. Ample opportunity for study. Previous experience not essential. Post vacant September 17. Applications, with full details, naming two referees, to Administrator immediately. (5964)

BRADFORD ROYAL INFIRMARY

SENIOR HOUSE OFFICER (Anaesthetics)

vacant September 15. Recognized for D.A. and F.F.A. Opportunities for plastic and intrathoracic experience. Applications, stating age, experience, nationality and qualifications, with copy testimonials, to Secretary. (6486)

BRISTOL, COSSHAM & FRENCHAY HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the appointment of
RESIDENT ANAESTHETIST
at Frenchay Hospital (542 beds, general medicine and surgery and regional departments of neuro-, plastic and thoracic surgery). The appointment will be made either in the House Officer grade or in the Senior House Officer grade according to qualifications and experience of the successful candidate. Applications, naming two referees, to be submitted to the Group Secretary, Frenchay Hospital, Bristol, by August 31, 1956. (6514)

CAMBRIDGE, ADDENBROOKE'S HOSPITAL

TEMPORARY RESIDENT ANAESTHETIC SENIOR HOUSE OFFICER

required September 9 to 23 in first instance. Anaesthetic experience essential. Apply, stating age, nationality, qualifications and experience (with dates), and copies of three testimonials, to Secretary by August 17. (6354)

CHELMSFORD HOSPITALS

RESIDENT ANAESTHETIST

Applications are invited for the post of Resident Anaesthetist (Senior House Officer) to large surgical units, for a period of twelve months. Applications, stating age, qualifications and experience, with recent testimonials, should be sent to the Secretary, Chelmsford Hospital Management Committee, London Road, Chelmsford. (8286)

KENT AND SUSSEX HOSPITAL
Tunbridge Wells (301 beds)

SENIOR HOUSE OFFICER (Anaesthetics)

required (male or female), resident. Vacant August 30. Recognized D.A. and F.F.A. R.C.S. Applications, giving age, qualifications and experience, with names of two referees, to Group Secretary, Sherwood Park, Tunbridge Wells. (5844)

NOTTINGHAM GENERAL HOSPITAL

SENIOR HOUSE OFFICER (Anaesthetics)

required as soon as possible. The post is recognized for the D.A., and the F.F.A.R.C.S. This is a busy general Hospital giving experience in all branches of surgery. Applications, stating age, nationality, qualifications and experience, together with copies of testimonials, to be sent to the Group Secretary. (5642)

TORQUAY DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Torbay Hospital, Torquay, 166 beds

SENIOR RESIDENT HOUSE OFFICER (Anaesthetics)

required as soon as possible. There is a complement of 6 Resident House Officers and the Hospital is recognized for the D.A. and for the F.F.A.R.C.S. Applications, stating qualifications, age, nationality, with copy testimonials, to the Group Secretary, Torbay Hospital, Torquay, S. Devon. (9812)

WARRINGTON INFIRMARY (172 beds)

Applications are invited for the vacant post of
RESIDENT ANAESTHETIST
(Male or female)
(Graded as Senior House Officer)
The hospital is recognized for the D.A. examination. Salary is £745 per annum, less a deduction of £130 per annum for residential emoluments. Applications, stating qualifications and experience, should be sent to H. L. Boot, Group Secretary, Warrington and District Hospital Management Committee, c/o General Hospital, Warrington, Lancs. (5631)

WORCESTER, RONKSWOOD HOSPITAL

RESIDENT ANAESTHETIST (S.H.O. status)

required at end of September for post which is recognized by the Faculty of Anaesthetists. Duties cover all specialities. Married accommodation available. Applications, with names and addresses of three referees, to be sent to the Hospital Secretary. (6415)

THE ROYAL FREE HOSPITAL GROUP

JUNIOR RESIDENT ANAESTHETIST

Applications are invited for the post of Junior Resident Anaesthetist. Applicants must be registered medical practitioners. The appointment is for six months. Duties to commence on October 1, 1956. Salary and conditions of service in accordance with the Ministry of Health scale for House Officers. Application forms may be obtained from the Secretary, The Royal Free Hospital, Gray's Inn Road, W.C.1, to whom they should be returned not later than August 25, 1956. (6406)

BACTERIOLOGY

GLASGOW VICTORIA SECTORAL BACTERIOLOGICAL LABORATORY
Mearnskirk

Applications invited from registered practitioners for the post of
SENIOR HOUSE OFFICER
No previous laboratory experience necessary. Applications, with names of two referees, to the Secretary, Board of Management for Glasgow Victoria Hospitals, 24, St. Vincent Place, Glasgow, C.1. (6524)

CASUALTY

MANCHESTER REGIONAL HOSPITAL BOARD

2 WHOLE-TIME SENIOR CASUALTY OFFICERS

as follows:
(1) Preston Royal Infirmary, resident or non-resident. Appointee will work under general supervision of consultants.
(2) Burnley and District Hospitals, non-resident. Special experience required in the treatment of orthopaedic cases, fractures and trauma. Appointee will assist the consultant orthopaedic surgeon and have special responsibilities in the casualty and traumatic (including fracture) clinics, subject to the general supervision of the consultant.

Higher qualifications desirable, tenure of posts limited to 4 years. Salary within range £1,575 (at age 32) by £50 to £2,025 (according to experience, etc.). Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester, 8, to be returned by August 13, 1956. (6541)

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Croydon Group Hospital Management Committee
Croydon General Hospital (200 beds)

SENIOR CASUALTY OFFICER (Registrar status)

Post vacant, Busy Department. Post recognized for final F.R.C.S. Examination. Accommodation may be inspected on application to Hospital Secretary. Application forms obtainable from Group Secretary, Hospital Management Committee, General Hospital, London Road, Croydon, to be returned within 14 days. (6355)

BATH HOSPITAL MANAGEMENT COMMITTEE

Applications are invited from Registered Medical Practitioners for the post of
CASUALTY OFFICER
at the Royal United Hospital. It is graded Junior Hospital Medical Officer and the period of appointment will not exceed two years. Applications, stating age, qualifications and experience, with the names of two referees, should be sent to the Group Secretary, Manor Hospital, Combe Park, Bath, by August 18. The post is recognized for the final Fellowship Examination of the Royal College of Surgeons of England. (6356)

COVENTRY & WARWICKSHIRE HOSPITAL (354 beds)

CASUALTY and ACCIDENT OFFICER
J.H.M.O. status. Recognized F.R.C.S. Resident. Applications to Secretary, Group 20 H.M.C., Coventry & Warwickshire Hospital, Coventry. (6285)

HUDDERSFIELD ROYAL INFIRMARY (285 beds)

Applications are invited for the post of
CASUALTY OFFICER
The post, which is resident, is graded Junior Hospital Medical Officer and is recognized under the Fellowship regulations. Duties terminate at 7 p.m. daily with one night weekly on call. Applications for the appointment, which will be vacant on September 1, 1956, should be accompanied by copies of three recent testimonials and addressed to the undersigned.—H. J. Johnson, Group Secretary, The Royal Infirmary, Huddersfield. (6511)

ROYAL SUSSEX COUNTY HOSPITAL
Brighton, 7

J.H.M.O.

required August 20 as Senior Casualty Officer (Salary £775 by £50 to £1,075). Locum might be considered pending permanent appointment. Applications, giving usual particulars, together with the names of two referees, to the Administrative Officer. (6454)

SOUTHPORT GENERAL INFIRMARY

JUNIOR HOSPITAL MEDICAL OFFICER
(Resident)

Whole-time casualty post vacant August. Apply stating age, nationality, qualifications, experience, and copies of two recent testimonials, to Group Secretary, Southport & District H.M.C., Promenade Hospital, Southport. (6200)

MEMORIAL HOSPITAL
Shooters Hill, Woolwich, S.E.18

SENIOR HOUSE OFFICER (Casualty Dept.)

Vacant early September. Recognized for F.R.C.S. 6 months' resident appointment and may then be renewed. Salary £745 per annum, less £150 per annum for residence. Apply to Secretary. (6140)

PRINCESS BEATRICE HOSPITAL
Earl's Court, S.W.5

Applications are invited from Registered Medical Practitioners for the post of
RESIDENT CASUALTY OFFICER
(Some anaesthetic duties)
Senior House Officer grade, recognized for F.R.C.S. Applications, stating age, qualifications, with three testimonials, to the House Governor immediately. (6425)

ST. CHARLES' HOSPITAL (581 beds)
Ladbroke Grove, W.10

Applications are invited for the undermentioned post commencing September 3:
CASUALTY OFFICER (S.H.O.)
(Non-resident) (one of two)
Applications, stating age, qualifications, experience and names and addresses of two referees, to reach Hospital Secretary by August 15, 1956. (6464)

THE LONDON HOSPITAL, Whitechapel, E.1

Applications are invited for the post of
CASUALTY OFFICER (Graded S.H.O.)
The appointment will be for six months renewable for a further six months. The appointment is recognized for the F.R.C.S. Applications (6 copies), together with 6 copies of three recent testimonials, should be received by the undersigned by August 31, 1956.—H. Brierley, House Governor. (6500)

THE ROYAL FREE HOSPITAL

SENIOR CASUALTY OFFICER

Applications are invited from registered medical practitioners for the post of Senior Casualty Officer at the Royal Free Hospital, Gray's Inn Road, W.C.1. The appointment is full time, resident, for six months: duties to commence October 1, 1956. Salary and conditions of service in accordance with those laid down by the Ministry of Health for Senior House Officers. Application forms may be obtained from the Secretary, Royal Free Hospital, Gray's Inn Road, W.C.1, to whom they should be returned not later than September 1, 1956. (6407)

WEST LONDON HOSPITAL
Hammersmith Road, W.6

RESIDENT CASUALTY OFFICER
(S.H.O. grading)

required September 26. Age, qualifications, experience, copies two recent testimonials, to Secretary by August 18. (6426)

CAMBRIDGE, ADDENBROOKE'S HOSPITAL

CASUALTY OFFICER

Senior House Officer grade, required from September 25, 1956, non-resident if desired. Apply, with full particulars and copies of three recent testimonials, to the Secretary by August 18. (6312)

CHELMSFORD AND ESSEX HOSPITAL

CASUALTY OFFICER (Senior House Officer)

Applications are invited for the above resident post. It is recognized for the F.R.C.S. and offers excellent experience in the treatment of fractures and diagnosis of acute medical and surgical emergencies. Opportunity is given for Casualty Officer to follow up his cases in the wards and to obtain operating experience in major theatre under the guidance of the Consultants or the Resident Surgical Officer. Off duty time is generous and the post is one likely to suit both an officer seeking a higher qualification in surgery or one intending General Practice. The vacancy will occur on September 2. Apply, Secretary, Chelmsford Hospital Management Committee, Chelmsford and Essex Hospital, Chelmsford. (5681)

Casualty—contd.

HASTINGS, ROYAL EAST SUSSEX HOSPITAL
150 beds

SENIOR HOUSE OFFICER
(Casualty and Orthopaedic)

Post vacant August 20, 1956. Apply to Hospital Administrator. (6314)

HERTFORD COUNTY HOSPITAL (171 beds)
(Hospital situated 21 miles from London)

RESIDENT CASUALTY OFFICER
(Senior House Officer Grade)

with attachment to Paediatrician and Ophthalmic Consultant. Salary £745 per annum, less £150 per annum residential emoluments. Recognized under F.R.C.S. regulations. Appointment to commence as soon as possible. Apply, with full details and references, to Group Secretary, Hertford H.M.C., County Hospital, Hertford, Herts. Locum periods considered. (6547)

LEAMINGTON SPA, WARNEFORD GENERAL HOSPITAL (197 beds)

CASUALTY OFFICER (S.H.O.)

male or female, resident or non-resident. Post vacant August 22, 1956, and suitable for one reading for higher qualifications, being recognized for F.R.C.S., affording contact with all Specialist Units in the Hospital. Applications, with names and addresses of three referees, to Hospital Secretary. (5684)

LEEDS (A) GROUP HOSPITAL MANAGEMENT COMMITTEE

Applications are invited from registered medical practitioners for the appointment of
CASUALTY OFFICER (Senior House Officer)
at the Public Dispensary and Hospital, Leeds, 2. The appointment is recognized by the Royal College of Surgeons for Fellowship. Applications to the undersigned as soon as possible.—J. Folkard, Secretary, to the Committee, Administrative Offices, St. James's Hospital, Leeds, 9. (6034)

MERTHYR & ABERDARE HOSPITAL MANAGEMENT COMMITTEE

St. Tydfil's Hospital, Merthyr Tydfil (376 beds)

Applications are invited for the following posts:
RESIDENT SENIOR HOUSE OFFICER (Casualty)
Apply immediately with full particulars, and copies of two recent testimonials, to Group Secretary, St. Tydfil's Hospital, Merthyr Tydfil. (6313)

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL GENERAL HOSPITAL GROUP

South Devon and East Cornwall Hospital, Plymouth
Central Casualty Department

SENIOR HOUSE OFFICER IN CASUALTY
vacant September 1, 1956, recognized for the F.R.C.S.—Arthur R. Cash, Group Secretary, 7, Nelson Gardens, Stoke, Plymouth. (6420)

ROYAL BUCKINGHAMSHIRE HOSPITAL
Aylesbury

LOCUM CASUALTY OFFICER

required (S.H.O. Grade) from September 1 to 22. Apply, with copies of two recent testimonials, to Secretary-Superintendent as soon as possible. (6357)

ROYAL SOUTH HANTS HOSPITAL
Southampton (278 beds)
(Recognized for F.R.C.S.)

CASUALTY OFFICER
(Senior House Officer Grading)

required early in August. Applications, with copies of testimonials, to be submitted as soon as possible to the Secretary, Southampton Group Hospital Management Committee, Bullar Street, Southampton. (5195)

SUTTON & CHEAM HOSPITAL
Cotswold Road, Sutton, Surrey

RESIDENT SENIOR HOUSE OFFICER
(Casualty Officer)

Vacant September 7. Post recognized for F.R.C.S. Applications, stating age, experience and qualifications, with copies of recent testimonials, and the names of two referees, to the Group Secretary, St. Helier Hospital, Carshalton, Surrey. (6358)

WATFORD, HERTS, PEACE MEMORIAL HOSPITAL (208 beds)

SENIOR HOUSE OFFICER (Casualty)

required for full-time duties in modern department. Two other Casualty Officers employed. Post recognized for F.R.C.S. Vacant August 20. Applications, with names of two referees, to the Administrator. (6176)

TILBURY & SOUTH-EAST ESSEX HOSPITAL MANAGEMENT COMMITTEE

Tilbury & Riverside General Hospital
Tilbury Branch, Tilbury, Essex

Applications are invited from Registered Medical Practitioners for the appointment of
SENIOR HOUSE OFFICER
(Resident or Non-resident) to the Casualty, Orthopaedic & Fracture department of the above Hospital. The post, which is recognized by the Royal College of Surgeons, offers practical experience in the treatment of all types of surgery. The post, which is vacant on September 10, 1956, will be for six months in the first instance. Applications, together with copies of not more than three recent testimonials, should be forwarded to the undersigned.—G. E. Whyte, Group Secretary, Thurrock Hospital, Grays, Essex. (6035)

WATFORD, HERTS, PEACE MEMORIAL HOSPITAL (208 beds)

SENIOR HOUSE OFFICER (Casualty)

required for part-time duties in modern department to assist two full-time Casualty Officers. Times of duty can be adjusted to suit applicant and amount to approximately 26 hours per week. Applications, with names of two referees, to the Administrator. (6177)

READING, BATTLE HOSPITAL (391 beds)

Applications are invited from registered medical practitioners for two posts of
RESIDENT JUNIOR HOUSE SURGEON
in the Area Accident and Orthopaedic Department. (One vacant immediately the other October 1 next.) F.R.C.S. recognized. Also casualty duties. Salary £425 to £525 per annum, less £125 board residence. Apply, stating age, qualifications with dates, nationality, present post, with one copy of recent testimonial, to Hospital Secretary. (6548)

CHEST AND TUBERCULOSIS

(see also THORACIC SURGERY)

LEEDS REGIONAL HOSPITAL BOARD

WHOLE-TIME CONSULTANT CHEST PHYSICIAN

required for duties at Castle Hill, Northfield and Raywell Sanatoria, together with duties at Hull Chest Clinics and responsibility for certain Chest Clinic Services in the East Riding area. The person appointed will be Medical Superintendent of the Sanatoria and will be required to reside within five miles of Castle Hill Sanatorium. Consideration will be given to the successful candidate being allowed to change to maximum part-time duties within a period of one year of taking up duties. Applications (12 copies), stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6071)

EASTERN REGIONAL HOSPITAL BOARD
(Scotland)

Tuberculosis
Dundee Area

Applications are invited for the appointment of whole-time
ASSISTANT CHEST PHYSICIAN
(S.H.M.O. grade)
to the Tuberculosis Service in Dundee. The appointment will involve duties in Ashludie Hospital, Monifieth (222 beds, including the Regional Thoracic Surgical Unit of 66 beds), and in the Central Chest Clinic in Dundee. Further particulars and forms of application from the Secretary to the Board, 430, Blackness Road, Dundee, with whom applications must be lodged not later than August 25, 1956 (6250)

LONDON CHEST HOSPITAL

Hospital for Diseases of the Chest

Applications are invited for the appointment of
PART-TIME MEDICAL REGISTRAR
(Grading: Senior Registrar)
The duties require the equivalent of 5 notional half days a week, including one Refill Clinic. The appointment is for one year and is renewable. The present holders of Registrar posts at the Hospital are eligible to apply. Applications, stating date of birth, qualifications (with dates) and previous appointments held and accompanied by copies of 3 testimonials, should reach the undersigned by August 18.—Thomas Brown, House Governor, London Chest Hospital, E.2. (5894)

WIGAN AND LEIGH AND WRIGHTINGTON GROUPS OF HOSPITALS

REGISTRAR in Chest Diseases

Two busy chest clinics and opportunity to gain experience in Thoracic Surgical Unit. Applications, together with the names of two referees, to the Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan, as soon as possible. (6133)

AYRSHIRE, GLENAFTON HOSPITAL
New Cumnock, 100 beds

J.H.M.O.

Vacant August 1. Resident appointment. Offers wide experience in diagnosis and treatment of pulmonary tuberculosis. National terms. Apply immediately to Area Medical Superintendent, 1, Hill Street, Kilmarnock. (6455)

READING & DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the appointment of
JUNIOR HOSPITAL MEDICAL OFFICER
in the Area Department of Diseases of the Chest, for duty in the Reading Chest Clinic. The post offers wide experience in both tuberculosis and non-tuberculous chest diseases and duties will include attendance at Prospect Park Hospital, Reading, and Peppard Chest Hospital, Henley. Facilities are available for post-graduate studies. Salary within the scale £775 to £1,075 per annum. Applications, stating age and qualifications, together with names of three referees, should be sent to the Group Secretary, 3, Craven Road, Reading. (6537)

SKIPTON (near), GRASSINGTON HOSPITAL
(208 beds)

JUNIOR HOSPITAL MEDICAL OFFICER
required for the above hospital, which provides treatment for tuberculosis patients, men and women. Accommodation available for single applicants. Post tenable from September 1, 1956, or earlier if desired. Applications to Medical Superintendent. (6487)

LONDON CHEST HOSPITAL

Hospitals for Diseases of the Chest

Two vacancies occur October 1, 1956, for
RESIDENT HOUSE PHYSICIAN
Appointment for six months, four in London, two at the Country Branch, near Letchworth, and post graded as House Officer. Duties include work in the Out-patient Department and Refill Clinic as well as in wards. Applications, stating date of birth, qualifications (with dates) and previous appointments held, with copies of three testimonials, should reach the undersigned not later than August 17.—Thomas Brown, House Governor, London Chest Hospital, E.2. (6083)

DENTAL

BRIGHTON & LEWES H.M.C. GROUP HOSPITALS

RESIDENT DENTAL HOUSE SURGEON
required. Vacant mid-September. The post is recognized for the F.D.S. and offers a wide range of experience, including children's and orthodontic clinics. Applications, giving usual particulars, and naming two referees, to the Administrative Officer, Royal Sussex County Hospital, Brighton, 7. (6456)

EAR, NOSE, AND THROAT, ETC.

NORTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

PART-TIME CONSULTANT E.N.T. SURGEON
to Rush Green Hospital, Romford, Essex (four sessions a week). Applications (six copies), and names of three referees, should reach the Secretary, 11a, Portland Place, London, W.1, by Saturday, August 25. (6516)

BIRMINGHAM & MIDLAND EAR & THROAT HOSPITAL

REGISTRAR, E.N.T. SURGERY
Resident. Recognized for D.L.O. and F.R.C.S. Application forms from Group Secretary, Dudley Road Hospital, Birmingham, 18, to be returned before August 13. Candidates may visit Hospital. (6359)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointment, which will be for one year in the first instance:
REGISTRAR in Ear, Nose and Throat Surgery
based at the Royal Infirmary, Glasgow, for duties at Law Hospital, Carluke. Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent Street, Glasgow, C.2, by August 18, 1956. These appointments are subject to the National Health Service (Scotland) (Superannuation) Regulations. (6526)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

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Ear, Nose, and Throat—contd.

THE ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL
Gray's Inn Road, W.C.1, and Golden Square, W.1 with which is associated the Institute of Laryngology and Otology (University of London)

GENERAL PRACTITIONER CLINICAL ASSISTANTS AND OUT-PATIENT ASSISTANTS

These appointments give those engaged in general practice, who are able to attend for two sessions weekly over a period of 15 months commencing in October, 1956, the opportunity of widening their clinical experience in the Specialty. At the end of three months' training period the holders will be appointed as Out-patient Assistants with remuneration under paragraph 10 (b) of the N.H.S. terms and conditions of service. Further particulars may be obtained from the House Governor. (6429)

NEWPORT, MON., ROYAL GWENT HOSPITAL (260 beds) (Recognized D.L.O.)

JUNIOR HOSPITAL MEDICAL OFFICER or SENIOR HOUSE OFFICER (E.N.T. and Eyes)

required. Resident. Post covers 23 E.N.T. and 8 Eye beds. National salary scale, less £125 board residence. Write, quoting two referees, to Group Secretary, 64, Cardiff Road, Newport, Mon. (5310)

BOARD OF MANAGEMENT FOR GLASGOW VICTORIA HOSPITALS
24, St. Vincent Place, Glasgow, C.1

EAR, NOSE AND THROAT—SENIOR HOUSE OFFICER

required (resident Mearnskirk Hospital, Newton Mearns) with duties at Mearnskirk Hospital and Victoria Infirmary, Glasgow. Applications, with names of three referees, to the Secretary. (6525)

CUMBERLAND INFIRMARY, Carlisle (335 beds)

Applications are invited for the appointment of **SENIOR HOUSE OFFICER (E.N.T. and Eyes)**

Applications, giving two names for reference purposes, should be sent to the Group Secretary, East Cumberland Hospital Management Committee, Cumberland Infirmary, Carlisle. (6286)

NOTTINGHAM GENERAL HOSPITAL
Ear, Nose & Throat Department

SENIOR HOUSE OFFICER
(Ear, Nose & Throat)

required at above Hospital. This post is recognized for the D.L.O. and F.R.C.S. Examinations. Salary and conditions of service in accordance with Ministry Regulations. Duties to commence about September 1. Applications, stating age, qualifications and experience, together with copies of testimonials, to be sent to Group Secretary. (5294)

READING & DISTRICT HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER

for E.N.T. Department, Royal Berkshire Hospital, Reading. 40 beds. Post recognized for D.L.O. Applications, stating age, nationality, experience and qualifications, together with names of two referees, should be sent to the Group Secretary, 3, Craven Road, Reading. (9477)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the resident post of **SENIOR HOUSE OFFICER**

to the Ear, Nose and Throat Department, for a period of 12 months, commencing October 1. The post is recognized for the D.L.O. and F.R.C.S. Applications, stating age, qualifications and experience, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (5965)

WOLVERHAMPTON, THE ROYAL HOSPITAL
An Associated Hospital of the University of Birmingham Medical School

S.H.O. or H.O.

required, E.N.T. Department. Recognized for the D.L.O. and F.R.C.S. Examination. Also listed as pre-registration post. Apply, Secretary, with copies of testimonials. (6439)

DEWSBURY, YORKSHIRE, THE GENERAL HOSPITAL

HOUSE OFFICER (E.N.T. & General Surgery)

Applications are invited for the above pre-registration post which is available in early September, 1956. Applications, giving full details, and the names of three referees, should be sent to the Administrative Officer at the hospital. (Pr.6360)

HIGH WYCOMBE & DISTRICT WAR MEMORIAL HOSPITAL (163 beds, 8 residents)

PRE-REGISTRATION HOUSE SURGEON

required for E.N.T. and General Surgery. Applications, with names of two referees, to Group Secretary, St. Mary's Cottage, High Wycombe, Bucks. (Pr.5966)

GERIATRICS

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Whole-time ASSISTANT GERIATRIC PHYSICIAN (S.H.M.O. Grade)

required for the Geriatric Unit of the Portsmouth Hospital Group (44 chronic sick beds, including modern assessment unit of 76 beds). The person appointed will work under the general supervision of a Consultant Physician and will be required to undertake the domiciliary assessment of patients on the waiting list and maintain close liaison with the general practitioners and the Local Health Authorities. The duties will include general medical work. Candidates should have good experience in general medicine and experience in the care of the chronic sick is desirable. Canvassing will disqualify, but candidates may visit the Hospitals concerned by arrangement with Mr. E. H. Hurst, F.H.A., Group Secretary, Portsmouth Group Hospital Management Committee, 35, Grove Road South, Southsea. Applications (7 copies) stating age, qualifications, experience, and names and addresses of three referees, to the Area Secretary, Highcroft, Romsey Road, Winchester, by August 22, 1956. (6394)

BRISTOL, MANOR PARK HOSPITAL

JUNIOR HOSPITAL MEDICAL OFFICER

required. Salary £775 by £50 to £1,075. Unfurnished flat available at economic rent close to hospital. The hospital (750 beds) caters for acute and chronic illness in older age groups. All ancillary services available. Consultant staff visits regularly. Ample time for postgraduate study. Applications, stating age, nationality, whether married or single, experience, qualifications, and names and addresses of two referees, to be sent to Group Secretary, Manor Park Hospital, Manor Road Fishponds, Bristol, within 14 days of the appearance of this advertisement. (6403)

CAMBERWELL HOSPITALS MANAGEMENT COMMITTEE

St. Francis' Hospital, Constance Road, East Dulwich, S.E.22
(373 geriatric and long-stay chronic sick)

Applications invited for appointment as **SENIOR HOUSE OFFICER (Medical duties)**

Unit under direction of full-time geriatrician; association with "half-way" home; pre-admission and follow-up Out-patient clinics; facilities for investigations. Salary £745 a year, less charge for residence. Post vacant from September 1. Applications, stating age, qualifications and experience, enclosing copy testimonials, to the Group Secretary, Camberwell Hospitals Management Committee, Dulwich Hospital, S.E.22. (6361)

EASTBOURNE HOSPITAL MANAGEMENT COMMITTEE

St. Mary's and Downside Hospitals

SENIOR HOUSE OFFICER
(Resident or Non-resident)

Post vacant early September, offers good facilities for investigation, treatment and rehabilitation of geriatric cases. Staff of six house officers. Applications, stating age, nationality, whether married or single, with copies of two testimonials, to Group Secretary, 29, Bedfordwell Road, Eastbourne. (6315)

EDGWARE GENERAL HOSPITAL
Edgware, Middlesex (715 beds)

Applications are invited for the appointment of **SENIOR HOUSE OFFICER in Geriatrics**

The duties will involve the medical treatment and rehabilitation of elderly sick in a new and developing department of the hospital. There are facilities for postgraduate study. Applications, stating age, qualifications, experience, and the names and addresses of two referees, to Group Secretary by August 11, 1956. (6222)

SOUTH-WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE

West Middlesex Hospital

SENIOR HOUSE OFFICER, Geriatric Unit

Resident or Non-resident, vacant September 8, 1956. Post offers excellent experience in general medicine. Applications to Group Secretary, West Middlesex Hospital, Isleworth by August 16, 1956. (6480)

INFECTIOUS DISEASES

ROMFORD, ESSEX, RUSH GREEN HOSPITAL

REGISTRAR in Infectious Diseases and General Medicine (Resident or Non-resident)

Regional Polio Unit (30 beds) and approximately ten medical beds. Excellent experience in wide variety of positive and negative pressure apparatus. Applicants may visit the Hospital by appointment (Tel.: Romford 7711). Appointment subject to review after one year. Application forms from Secretary, N.E. Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, to be returned by August 11. (6203)

PLYMOUTH, THE SCOTT ISOLATION HOSPITAL

Plymouth Special Hospital Management Committee

SENIOR HOUSE OFFICER

Applications are invited for the above appointment from male registered medical practitioners who have preferably been qualified for one year and have had previous hospital experience. The applicant should be able to drive a car. The duties, in two departments, will be chiefly in connection with infectious and venereal diseases, the former including a substantial proportion of cases in children. The varied clinical work, including acute medical cases and early pulmonary tuberculosis, provides valuable experience, particularly to those reading for a higher medical degree. The appointment will be for one year, vacant on October 1 next. Applications, together with copies of two recent testimonials, should be sent to the Group Secretary, Plymouth Special Hospital Management Committee, 8, Nelson Gardens, Stoke, Plymouth, before August 30, 1956. (6159)

SOUTHAMPTON CHEST HOSPITAL (261 beds)

SENIOR HOUSE OFFICER

required from mid-August, to be responsible for Infectious Diseases Unit. The duties are such as to suit a candidate reading for higher examinations. The Unit is sited at a Hospital possessing up-to-date tuberculosis and thoracic surgical units, whilst the Southampton Group of Hospitals as a whole affords excellent opportunities for study and experience in all branches of medicine. Applications, together with copies of recent testimonials, should be forwarded as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar Street, Southampton (5455)

MEDICINE

ST. MARY'S HOSPITAL, W.2

Applications are invited from suitably qualified practitioners for the post of non-resident, whole-time

REGISTRAR IN GENERAL MEDICINE

The successful applicant will be required to undertake work in the Casualty and Out-patient Departments as well as having certain In-patient duties. The appointment will be for a first period of twelve months, as from October 1, 1956. Applications, stating nationality, date of birth, permanent address, qualifications with dates, details and National Health Service gradings of previous and present appointments, together with the names and addresses of three referees, should reach Alan Powditch, House Governor, not later than August 15, 1956. (6209)

ST. MARY'S HOSPITAL, Paddington, W.2, and the NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

SENIOR REGISTRAR in General Medicine

required on October 1, 1956, for a combined appointment which will normally be for a period to August 31, 1960; mainly first and final periods at St. Mary's Hospital; second and third periods at West Middlesex Hospital. Possession of a higher medical qualification essential. Hospitals may be visited by direct appointment. Applications, stating nationality, date of birth, permanent address, qualifications, with dates and details and National Health Service gradings of previous and present appointments, together with the names and addresses of three referees, should reach Alan Powditch, House Governor, not later than August 15, 1956. (6208)

ST. MARY ABBOTS HOSPITAL
Marloes Road, Kensington, W.8

Applications are invited for appointment as **MEDICAL REGISTRAR**

Post vacant November 1, 1956. Candidates may visit the hospital by arrangement. Applications (5 copies) to be submitted by August 17, 1956, on forms obtainable from, and returnable to, Group Secretary, 5, Collingham Gardens, London, S.W.5. (6539)

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for an appointment as whole-time

REGISTRAR IN GENERAL MEDICINE

to fill a vacancy in the approved trainee establishment at the Bermondsey & Southwark group of hospitals. The appointment will be in accordance with the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales), and will be for one year in the first instance. Applications, giving particulars of age, qualifications and experience with relevant dates, together with the names and addresses of two referees, to be sent to the Secretary, Registrars Committee, South-East Metropolitan Regional Hospital Board, 11, Portland Place, W.1, not later than August 18, 1956. (6316)

Medicine—contd.

ST. THOMAS' HOSPITAL, London, S.E.1

MEDICAL REGISTRAR
to the Department of Metabolic Diseases

For a period of one year in the first instance. Applications, naming two referees, to the Clerk of the Governors by August 17, 1956. (6225)

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Fulham & Kensington Hospital Management Committee

Applications are invited for appointment at
Fulham Hospital, St. Dunstan's Road, Hammersmith, W.6, as
MEDICAL REGISTRAR

Post vacant October 1, 1956. Candidates may visit the hospital by arrangement with the Hospital Secretary. Applications (5 copies to be completed) by August 17, 1956, on forms obtainable from Group Secretary, 5, Collingham Gardens, London, S.W.6. (6465)

UNIVERSITY COLLEGE HOSPITAL
Gower Street, W.C.1

SENIOR MEDICAL REGISTRAR

required at the Hospital for Tropical Diseases, 4, St. Pancras Way, London, N.W.1, from September 17, 1956. Appointment for one year, renewable. Applications, with names of two referees, to Administrator and Secretary by August 11, 1956. (6409)

EASTERN REGIONAL HOSPITAL BOARD
Scotland

Maryfield Hospital, Dundee
General Medicine

Applications are invited for an appointment as
REGISTRAR

in the Unit of the Professor of Medicine at Maryfield Hospital, Dundee, a general teaching hospital of 370 beds associated with the University of St. Andrews. Forms of application and further particulars from the Secretary to the Board, 430, Blackness Road, Dundee, with whom applications must be lodged not later than August 11, 1956. (6115)

EASTERN REGIONAL HOSPITAL BOARD
(Scotland)

General Medicine
Stracathro Hospital, Brechin

Applications are invited for the post of
REGISTRAR IN MEDICINE

at Stracathro Hospital, Brechin (a general hospital of 675 beds—150 medical). Further particulars and forms of application from the Secretary to the Board, "Bracknowe," 430, Blackness Road, Dundee, with whom applications must be lodged not later than August 18, 1956. (6557)

MANCHESTER REGIONAL HOSPITAL BOARD

Preston and Chorley Hospital Management Committee
Sharoe Green Hospital, Preston (360 beds)

MEDICAL REGISTRAR

Vacant mid-August. Application forms obtainable from Group Secretary, Royal Infirmary, Preston, Lancs. (6299)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

MEDICAL REGISTRAR (General Medicine)

required at Barnet General Hospital, Wellhouse Lane, Barnet, Herts (461 beds). Post vacant October. Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Group Secretary, Barnet Group H.M.C., 1, Wellhouse Lane, Barnet, Herts, by August 15. (6164)

SHEFFIELD REGIONAL HOSPITAL BOARD

City General Hospital, Sheffield (652 beds)

WHOLE-TIME RESIDENT MEDICAL REGISTRAR

required. Duties also at Fir Vale Infirmary, Sheffield. Experience in Neurology will be considered an advantage. Post vacant October 20. Appointment for one year in first instance. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 13, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (6362)

WESTMINSTER HOSPITAL
St. John's Gardens, S.W.1

Applications are invited for the post of
RESIDENT MEDICAL OFFICER (female)

at Parkwood Auxiliary Hospital, Swanley, Kent, for one year in the first instance and renewable. Graded as Junior Hospital Medical Officer. A deduction of £170 per annum will be made from the salary for board residence. The post offers opportunity for study. Applications (4 copies), with names of two referees, to House Governor. (6107)

SOUTH LONDON HOSPITAL
Clapham Common, S.W.4

Applications are invited from Registered Women Medical Practitioners for the appointment of
RESIDENT MEDICAL OFFICER

Senior House Officer grade. Appointment for one year. Duties include care of Children's Ward. Vacant August 20, 1956. Application forms from the Secretary. (6317)

BISHOP'S STORTFORD & DISTRICT HOSPITAL
Rye Street, Bishop's Stortford, Herts
(67 beds—Medical, Surgical & Maternity)

Applications are invited from registered Medical Practitioners for the post of:
RESIDENT SENIOR HOUSE OFFICER

Appointment to commence as soon as possible. Salary £745 per annum, less £130 for residential emoluments. Applications, stating age, nationality, qualifications and experience, with copies of two recent testimonials, or names of referees, to the Hospital Secretary, Haymeads Hospital, Bishop's Stortford, Herts. (5777)

NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Ancoats Hospital, Manchester, 4

Applications are invited for the post of
SENIOR HOUSE OFFICER in Medicine

Recognized for M.R.C.P. Applications, with two referees, by August 13, 1956, to Group Secretary, Crumpsall Hospital, Manchester, 8. (6363)

NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Crumpsall Hospital

Applications are invited for the post of
SENIOR HOUSE OFFICER in Medicine

Vacant September 27, 1956. Applications, with full details, and two referees, by August 13, 1956, to Group Secretary, Crumpsall Hospital, Manchester, 8. (6288)

SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE

War Memorial Hospital, Scunthorpe (262 beds)

Applications are invited for
RESIDENT HOUSE PHYSICIANS

(a) S.H.O. /Intern—vacant late September;
(b) Intern/S.H.O.—vacant early October.

Busy department with medicine, paediatrics, skins and eyes, large out-patient clinics. Applications, naming two referees, to Group Secretary. (6287)

STROUD GENERAL HOSPITAL, Glos.

TWO SENIOR HOUSE OFFICERS

required. Would suit married couple (without children) each filling one post. Locum appointments considered. Posts offer favourable experience for those wishing to enter General Practice. Applications, naming two referees, to Hospital Secretary. (6528)

CONNAUGHT HOSPITAL, Walthamstow, E.17
(118 beds)

HOUSE PHYSICIAN

required for a period of six months. Post vacant August 31, 1956. Applications, with full details and copies of two recent testimonials, should be sent immediately to the Secretary, H.M.C. Forest Group, Langthorne Road, E.11. (5967)

SOUTH LONDON HOSPITAL FOR WOMEN AND CHILDREN, Clapham Common, S.W.4

Applications are invited from Pre-registration and Registered Women Medical Practitioners for the post of

HOUSE PHYSICIAN

vacant on October 11, 1956, for a period of six months. Forms of application from the Secretary. (6318)

AYLESBURY, BUCKS, STOKE MANDEVILLE HOSPITAL (609 beds)

Applications are invited for the post of
RESIDENT HOUSE PHYSICIAN

in the Department of Medicine. Pre-registration post, but registered practitioners may apply. Duties include responsibility for 20 acute medical beds and 15 tuberculosis beds. Post vacant September 19, 1956. Applications, with copies of two testimonials, to the Administrative Officer. (6364)

KIRKCALDY, VICTORIA HOSPITAL

HOUSE OFFICER (Non Pre-registration)

required for six months from October 1, 1956. Duties part-time in Wards for Aged Sick, 50 beds, part-time under Consultant Physician in Acute Medical Unit, 65 beds. Resident or non-resident. Salary in accordance with National Scales. Apply, stating names of two referees, to the Medical Superintendent, East Fife Hospitals Board of Management, 243a, High Street, Kirkcaldy. (6529)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

All Saints' Hospital, Chatham

HOUSE PHYSICIAN

Applications are invited for the above post vacant August 27, 1956, which is recognized for pre-registration service. Salary £425 to £525 per annum, according to experience. Applications, stating age, qualifications, nationality and experience, together with copies of recent testimonials, to be addressed to the Hospital Secretary. (6196)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

Sheppey General Hospital, Minster, Sheppey, Kent

HOUSE PHYSICIAN

Applications are invited for the above pre-registration post, vacant August 28, 1956. Salary £425 to £525 per annum according to experience. Applications, stating age, qualifications and experience, to be addressed to the Hospital Secretary. (6197)

ROMFORD, ESSEX, RUSH GREEN HOSPITAL
(301 beds)

RESIDENT HOUSE PHYSICIAN

required from September 6, 1956. This hospital provides for acute medical and surgical patients in addition to a limited number of fever cases. The post, which is also open to pre-registration candidates, offers good opportunities for gaining experience in both general medicine and fever. Applications should be addressed immediately to Medical Superintendent, stating also names of two referees. (6044)

STAINES GROUP HOSPITAL MANAGEMENT COMMITTEE

Ashford Hospital, Ashford, Middlesex (560 beds)

RESIDENT HOUSE OFFICER (male)

required for general medical and surgical duties. Six months' appointment, vacant September 1, 1956, not suitable for Pre-registration candidates. Applications, stating age, qualifications, and experience, with copies of up to three recent testimonials, to Medical Director of Hospital. (6165)

CENTRAL MIDDLESEX HOSPITAL
Park Royal, N.W.10

RESIDENT HOUSE OFFICER

pre-registration, required in General Medical and Cardiological Department. Appointment for six months from September 22, 1956. Applications, with copies of two testimonials, to Medical Director by August 11, 1956. (Pr.6422)

GROUP 20 HOSPITAL MANAGEMENT COMMITTEE, COVENTRY

HOUSE OFFICERS in General Medicine

(pre-registration), resident, required at each of the following hospitals:

Gulson Hospital, Coventry—September 7.
Manor Hospital, Nuneaton—September 14.
George Eliot Hospital, Nuneaton—September 23.
Hospital of St. Cross, Rugby—September 9.

Applications to Secretary, Group 20 H.M.C., Coventry & Warwickshire Hospital, Coventry. (Pr.6300)

GUILDFORD GROUP HOSPITAL MANAGEMENT COMMITTEE

St. Luke's Hospital, Guildford (392 beds)

HOUSE PHYSICIANS (2) (Pre-registration)

Vacant (i) September 5, 1956, and (ii) September 12, 1956, with preceding two weeks' locum in each case. Medical unit of acute and chronic beds. Applications, with copies of recent testimonials, should be sent to the Physician Superintendent. (Pr.6007)

HULL (A) GROUP HOSPITAL MANAGEMENT COMMITTEE

Kingston General Hospital, Hull (419 beds)

HOUSE PHYSICIAN (Pre-registration Post)

Resident, and tenable for 6 months. Vacant now. Applications, with two recent testimonials, to the Hospital Secretary. (Pr.6365)

IPSWICH AND EAST SUFFOLK HOSPITAL
HEATH ROAD WING, Ipswich (274 beds)

Applications invited for the post of
HOUSE PHYSICIAN (pre-registration)

vacant September 1, 1956. Detailed applications, with copies of three recent testimonials, to Hospital Secretary. (Pr.6289)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

Medicine—contd.

LEICESTER GENERAL HOSPITAL

Applications are invited for three pre-registration posts of

HOUSE PHYSICIAN

vacant October 1. Applications, stating age and qualifications, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (Pr.5969)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

Royal Portsmouth Hospital
HOUSE PHYSICIAN (pre-registration)
65 Medical Beds. Vacant August 17.

St. Mary's Hospital
HOUSE PHYSICIAN (pre-registration)
74 Medical Beds. Vacant August 13.

Applications, stating age, experience and qualifications, together with the names of two referees, should be forwarded as soon as possible to E. H. Hurst, 35, Grove Road South, Southsea. (Pr.6366)

READING AREA DEPARTMENT OF MEDICINE

Applications are invited from provisionally registered medical practitioners for three posts as

RESIDENT HOUSE PHYSICIAN

All vacant September 1, 1956, for a period of six months. Successful applicant will be required to carry out duties at the following Reading hospitals: Royal Berkshire (399 beds), Battle (301 beds), Prospect Park (104 beds). Write, immediately, stating age, qualifications with dates, nationality, present post, with copy of a recent testimonial, to the Secretary, Royal Berkshire Hospital, Reading. (Pr.5867)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the pre-registration post of

HOUSE PHYSICIAN

vacant October 1. Applications, stating age and qualifications, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (Pr.5970)

NEUROLOGY

THE HOSPITAL FOR SICK CHILDREN
Great Ormond Street, London, W.C.1

There will be a vacancy on November 1, 1956, for a

RESIDENT OFFICER

to the Neurological and Neuro-Surgical Department (Senior House Officer). Further particulars and form of application, which must be returned not later than Monday, September 3, 1956, may be obtained from the undersigned.—H. F. Rutherford, House Governor and Secretary. (6493)

THE NATIONAL HOSPITALS FOR NERVOUS DISEASES

RESIDENT MEDICAL OFFICER and HOUSE PHYSICIAN

Applications are invited for the posts of Resident Medical Officer and House Physician (Resident) at Maida Vale Hospital for Nervous Diseases, London, W.9. Appointments in the first instance for six months, renewable. Grading as Senior House Officer or Registrar according to experience. Preference will be given to candidates holding a higher degree and previous neurological experience will be an asset. Applications, with copies of three recent testimonials, should be sent to the Secretary at Maida Vale Hospital not later than August 25, 1956. (6416)

NEUROSURGERY

REGIONAL NEUROSURGICAL CENTRE
(66 beds), Brook General Hospital, Shooters Hill Road, S.E.18

SENIOR HOUSE OFFICER (Neurosurgery)

Vacant August 22. Post recognized for F.R.C.S. & D.P.M. and provides excellent opportunity for training in Neurology. Apply to Group Secretary, Memorial Hospital, Woolwich, S.E.18. (6139)

BRISTOL, COSSHAM/FRENCHAY HOSPITAL MANAGEMENT COMMITTEE

Frenchay Hospital (542 staffed beds, expanding)

Applications are invited for

SENIOR HOUSE OFFICER

posts in the regional department of Neuro-Surgery. Vacancies will arise Mid-August and at the end of September next. These posts offer useful surgical experience and the opportunity of gaining a working knowledge of neurological diagnosis. Recognized for F.R.C.S. Two referees required. Applications to the Secretary, Frenchay Hospital, quoting "N.S.F." (5613)

OBSTETRICS AND GYNAECOLOGY

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

CONSULTANT GYNAECOLOGIST

2½ half-days a week, Royal London Homoeopathic Hospital, Great Ormond Street, W.C.1 (183 beds). Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Secretary, North-West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, before September 6, 1956. (6517)

AN OPENING IS AVAILABLE FOR A GYNAECOLOGIST/OBSTETRICIAN at an American Air Force Hospital in Wiltshire, to work with the Air Force obstetrician. Applicant should have completed requirements for M.R.C.O.G. Quarters could be provided for a bachelor physician. Minimum salary £2,000 per annum. Physician available on a permanent basis only. Appointment would be for a minimum period of two years. Applications should be addressed to Captain M. H. Gotlib, 7505th U.S.A.F. Hospital, Wroughton, near Swindon, Wilts. (6556)

LIVERPOOL REGIONAL HOSPITAL BOARD

Clatterbridge Hospital (1 post)
Broadgreen Hospital (1 post)

Applications are invited for the two posts of

RESIDENT REGISTRAR
in Obstetrics and Gynaecology

with duties at the above hospitals. The posts, which are tenable from October 1, 1956, are recognized for the M.R.C.O.G. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 18, 1956.—Vincent Collinge, Secretary to the Board. (6475)

ROYAL WOMEN'S HOSPITAL
Melbourne, Australia

An appointment is available as

RESIDENT HOUSE SURGEON

in the Royal Women's Hospital, Melbourne (Obstetrics and Gynaecology), commencing early in 1957. The appointment is recognized for M.R.C.O.G. The tenure is 12 months. Salary £1,400 (A) per annum, with board and lodging. Duties: Registrar to an obstetrical unit responsible for 1,400 confinements per annum and concurrently Registrar to a gynaecological unit of 32 beds. Applicants must have had six months' resident experience in medicine and surgery and twelve months' experience in obstetrics and gynaecology. The appointment will be made by the Royal College of Obstetricians and Gynaecologists and application should be made immediately to the Secretary at 58, Queen Anne Street, London, W.1, with the names of two referees. (6530)

SHREWSBURY GROUP OF HOSPITALS

REGISTRAR, Obstetrics and Gynaecology

Royal Salop Infirmary/Copthorne Hospital. Recognized for M.R.C.O.G. (Gynaecology). Duties include teaching and considerable clinical responsibility. Application forms from Secretary, Hospital Management Committee, Royal Salop Infirmary, Shrewsbury, to be returned before August 13, 1956. Candidates may visit hospitals. (6392)

WELSH REGIONAL HOSPITAL BOARD

REGISTRAR Obstetrics and Gynaecology

St. Asaph General and Maternity Hospital (201 beds). Post recognized for M.R.C.O.G. examination. Self-contained flat available. Post vacant immediately. Subject to review end of first year. Application forms from S.A.M.O., Temple of Peace, Cathays Park, Cardiff, within 14 days. (6503)

ST. MARY'S HOSPITAL, W.2
Gynaecological Department
Samaritan Hospital for Women

Applications are invited from Registered Medical Practitioners for the post of

RESIDENT MEDICAL OFFICER
(Senior House Officer)

The appointment is for one year from October 1, 1956. Preference given to candidates intending to specialize in gynaecology and obstetrics. Applications, stating nationality, date of birth, permanent address, qualifications (with dates) and details of previous appointments, together with two testimonials, should reach the undersigned by August 13, 1956.—Arthur E. Tyler, Secretary, Samaritan Hospital for Women, Marylebone Road, London, N.W.1. (6507)

BIRMINGHAM, 16, ST. CHAD'S HOSPITAL
Hagley Road

SENIOR HOUSE OFFICER
in Obstetrics and Gynaecology

required. Appointment for 12 months and recognized for M.R.C.O.G. Unit affiliated to Birmingham University for undergraduate clinical tuition. Detailed applications, with copies of two recent testimonials, to Group Secretary, Dudley Road Hospital, Birmingham, 18. (6099)

GRIMSBY GENERAL HOSPITAL

Applications are invited for the post of

HOUSE SURGEON GYNAECOLOGY
(Pre-registration or S.H.O. grade)

with some relief Obstetric duties. S.H.O. post recognized for M.R.C.O.G. Up-to-date Medical Library and reading facilities available. Apply, with two names for reference, to Hospital Secretary, Grimsby General Hospital, Grimsby, Lincs. (6320)

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Stoke-on-Trent
(Gynaecology Department)

SENIOR HOUSE OFFICER

required. Post vacant very shortly. Recognized for M.R.C.O.G. (Surgery). Experience in abnormal obstetrics available, but the work is mainly gynaecological. Detailed applications, with copy testimonials, to Group Secretary, H.M.C., Princes Road, Stoke-on-Trent. (6049)

NOTTINGHAM, HIGHBURY HOSPITAL

Applications are invited for

SENIOR HOUSE OFFFICER

Obstetrical and Gynaecological Department; 41 obstetric beds, 11 gynaecological beds and a small block for puerperal pyrexia. Duties to commence as soon as possible. The Hospital is recognized for the M.R.C.O.G. (obstetrics only). Previous obstetrics experience required. Applications, stating age, qualifications, experience and nationality, together with copies of recent testimonials, to be sent to the Group Secretary, General Hospital, Nottingham. (5694)

OLDHAM AND DISTRICT GENERAL HOSPITAL

APPOINTMENT OF SENIOR HOUSE OFFICER
(Obstetrics & Gynaecology)

Applications are invited for the above appointment, becoming vacant on September 28, 1956. The Obstetrical Department contains 72 beds and there are 48 Gynaecological beds. The post is recognized for the M.R.C.O.G. and D.Obst. R.C.O.G. Applicants should have had some obstetrical experience and the appointment is for 12 months. Applications, containing full particulars of qualifications and experience, together with the names of two persons to whom reference may be made, should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale Road, Oldham. (6481)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

Queen Alexandra Hospital

SENIOR HOUSE OFFICER

for Gynaecological Department (39 beds), vacant now, recognized for M.R.C.O.G. Applications, stating age, experience and qualifications, together with the names of two referees, should be forwarded as soon as possible to E. H. Hurst, 35, Grove Road South, Southsea. (6367)

RYHOPE GENERAL HOSPITAL (282 beds)

SENIOR HOUSE OFFICER (male or female)

in Gynaecology and Surgery required. There are 26 beds gynaecology and 82 beds surgery (part of the surgical team). Post vacant September 1, 1956. Apply, naming two referees, to the Hospital Secretary, Ryhope General Hospital, Ryhope, Co. Durham. (6411)

ST. HELENS & DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Whiston Hospital, Prescot (892 beds)
(Obstetrical Unit 73 beds)

SENIOR HOUSE OFFICER
Obstetrics and Gynaecology

Applications are invited for the above resident post, which is recognized for the M.R.C.O.G. and D.R.C.O.G. examinations. Previous obstetrical and gynaecological experience is essential. Applications, stating age, qualifications and experience, and giving two names for reference, should be forwarded to N. Richards, Group Secretary, Whiston Hospital, Prescot. (6421)

THE LEICESTER ROYAL INFIRMARY MATERNITY HOSPITAL

Applications are invited for the post of

SENIOR HOUSE OFFICER (Obstetrics)

vacant October 1. Recognized for D.Obst. R.C.O.G. Applications, stating age, qualifications and experience, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (5971)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the post of resident

SENIOR HOUSE OFFICER

to the Obstetric and Gynaecological Department, commencing October 1. The post is recognized for the M.R.C.O.G. (Gynaecology only). Applications, stating age, qualifications and experience, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (5972)

Obstetrics and Gynaecology—contd.

WATFORD MATERNITY HOSPITAL
King Street, Watford (58 beds)

Applications are invited for the residential post of
SENIOR OBSTETRIC OFFICER
for duties commencing September 4, 1956. Salary £745 per annum, less £155 per annum for residential emoluments. Hospital recognized for M.R.C.O.G. examination. Applications, giving full details of age, nationality, qualifications, present and previous appointments with dates, and copies of three testimonials, should be sent to the Hospital Secretary as soon as possible after the appearance of this advertisement. (6181)

LAMBETH HOSPITAL, Brook Drive, S.E.11

Applications are invited from pre-registration and registered medical practitioners for the position of
RESIDENT HOUSE SURGEON
in the Obstetric and Gynaecological Department. The appointment is for six months from September 1, 1956. The hospital is recognized for the M.R.C.O.G. and D.R.C.O.G. Application forms from the Physician Superintendent. Stamped addressed envelope should be enclosed. (6284)

BEVERLEY, YORKSHIRE, WESTWOOD HOSPITAL (229 beds)

PRE-REGISTRATION HOUSE OFFICER IN OBSTETRICS AND GYNAECOLOGY
Vacant mid-August. Hospital has Maternity Unit of 22 beds and Gynaecological Annexe of 18 beds. Fully registered practitioners may apply. Detailed applications to Group Secretary. (6321)

BIRMINGHAM, 19. HEATHFIELD ROAD MATERNITY HOSPITAL, 134, Heathfield Road

OBSTETRIC HOUSE SURGEON
required on October 1, 1956. Preference given to candidates with previous medical and surgical experience. 50-bed maternity unit with 18-cot Premature Baby Unit attached. Large ante-natal department. Appointment recognized for D.R.C.O.G. Detailed applications, with copies of three recent testimonials, to Group Secretary, Dudley Road Hospital, Birmingham, 18. (6404)

HOSPITAL OF ST. CROSS, RUGBY, AND ST. MARY'S HOSPITAL, Harborough Magna

HOUSE OFFICER in Gynaecology and Obstetrics
Obstetrics 40 beds, Gynaecology 12 beds. Not pre-registration. Vacant mid-August. Resident. Applications to Hospital Secretary, Hospital of St. Cross. (6301)

BURNLEY AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Burnley General Hospital (641 beds)

RESIDENT HOUSE OFFICER (Gynaecology)
The appointment is recognized as a Pre-registration post and also recognized for M.R.C.O.G. Applications, with three references, to Group Secretary, Burnley General Hospital, Burnley. (Pr.6211)

DARLINGTON DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Greenbank Maternity Hospital (61 beds)

Applications are invited for the post of
OBSTETRICAL HOUSE OFFICER
resident. Approved pre-registration appointment. Hospital recognized for D.R.C.O.G. Apply to the Group Secretary, Darlington Memorial Hospital, at once.—G. W. Beckwith, Group Secretary. (Pr.6137)

MAIDENHEAD, CANADIAN RED CROSS MEMORIAL HOSPITAL, Taplow

HOUSE SURGEON
required for Unit of Obstetrics & Gynaecology, vacant September 4. Post recognized for M.R.C.O.G. Preference given to candidates seeking pre-registration post. Applications, stating age, experience and qualifications, with copies of two testimonials, from Secretary. (Pr.6011)

NUNEATON, GEORGE ELIOT HOSPITAL

HOUSE OFFICER in Gynaecology and Obstetrics
Pre-registration. Recognized M.R.C.O.G. and D.Obst.R.C.O.G. Vacant September 2. Applications to Hospital Secretary. (Pr.6303)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Birch Hill Hospital

HOUSE OFFICER (Obstetrics & Gynaecology)
post vacant late August. Pre-registration post of six months' duration. Recognized for D.R.C.O.G. Apply to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, at once. (Pr.6232)

STOKE-ON-TRENT, CITY GENERAL HOSPITAL

HOUSE OFFICER (Obstetrics and Gynaecology)
required. Vacant September 3. Pre-registration post. Recognized for M.R.C.O.G. and D.R.C.O.G. Applications to H.M.C. Secretary, Princes Road, Stoke-on-Trent, as soon as possible. (Pr.6302)

OPHTHALMOLOGY

AYRSHIRE HOSPITALS

ASSISTANT OPHTHALMOLOGIST (J.H.M.O.)
required for full-time duties in Ayrshire Hospitals and School Clinics. National terms and conditions. Apply immediately, giving names of two referees, to Area Medical Superintendent, 1, Hill Street, Kilmarnock. (6182)

CUMBERLAND INFIRMARY, Carlisle (335 beds)

Applications are invited for the appointment of
SENIOR HOUSE OFFICER (Eyes and E.N.T.)
Applications, giving two names for reference purposes, should be sent to the Group Secretary, East Cumberland Hospital Management Committee, Cumberland Infirmary, Carlisle. (6290)

SOUTH-WEST MIDDLESEX HOSPITAL MANAGEMENT COMMITTEE

South Middlesex Hospital, Isleworth

SENIOR HOUSE OFFICER
for Ophthalmic Unit (30 beds), vacant mid-September. Applications to Group Secretary, West Middlesex Hospital, Isleworth, by August 21, 1956. (6512)

TEES-SIDE HOSPITAL MANAGEMENT COMMITTEE

North Riding Infirmary (Eye, Ear, Nose & Throat Centre), Middlesbrough (120 beds)

Applications are invited for the appointment of
SENIOR HOUSE OFFICER (Ophthalmology)
The post, which is tenable in the first instance for a period of six months, is recognized for the Fellowship in Ophthalmology and also for the D.O. examination. Applications, stating full details and giving two names of referees, should be addressed to the Hospital Secretary. (5300)

THE UNITED LIVERPOOL HOSPITALS

Applications are invited for a post of
SENIOR HOUSE OFFICER in Ophthalmology
at St. Paul's Eye Hospital for the year beginning October 1, 1956. Apply by August 18, 1956, on form obtainable from the Secretary, 80, Rodney Street, Liverpool, 1. (6452)

UNITED MANCHESTER HOSPITALS

Manchester Royal Eye Hospital

Applications are invited for the following posts:
SENIOR HOUSE OFFICER
HOUSE OFFICER (pre-registration surgical post)
Applications, giving full details of age, nationality, qualifications, present and previous appointments with dates, and the names of two persons to whom reference may be made, should be forwarded to H. R. North, General Superintendent, Manchester Royal Eye Hospital. (6441)

BIRMINGHAM & MIDLAND EYE HOSPITAL
Church Street, Birmingham, 3

HOUSE SURGEON
required. Appointment for 6 months, but renewable. Hospital carries resident staff of 5 and provides a 2-year course of instruction. Recognized for the D.O. (England) and F.R.C.S. (England) in Ophthalmology. Wide experience available in all branches, including surgery. Detailed applications, by August 11, to Group Secretary, Dudley Road Hospital, Birmingham, 18. (6207)

ROYAL BUCKINGHAMSHIRE HOSPITAL
Aylesbury, Bucks

HOUSE OFFICER, OPHTHALMOLOGY
required immediately. Post recognized for D.O. Apply with copies of two recent testimonials to Secretary-Superintendent as soon as possible. (6368)

ORTHOPAEDICS

LIVERPOOL REGIONAL HOSPITAL BOARD

Warrington Group

Applications are invited for the post of
ORTHOPAEDIC REGISTRAR
in the above group, with duties mainly at Warrington Infirmary. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 18, 1956.—Vincent Collinge, Secretary to the Board. (6476)

SHEFFIELD REGIONAL HOSPITAL BOARD

Scunthorpe & District War Memorial Hospital (267 beds)
(Recognized for training for F.R.C.S.)

WHOLE-TIME RESIDENT REGISTRAR
(Orthopaedics)
required. Appointment for one year in first instance. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 13, 1956, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (6369)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

MEDICAL INSURANCE AGENCY LTD.
Chairman: James Fenton, CBE, MD. General Manager: A. N. Dixon, ACII. Hon. Secretary: Henry Robinson, MD, DL, JP
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CARDIFF: 195 Newport Road.
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Orthopaedics—contd.

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Croydon Group Hospital Management Committee

Applications are invited for appointment of
ORTHOPAEDIC REGISTRAR
Duties involving both Orthopaedic and Fracture work. Previous Orthopaedic experience essential. Post vacant October 20, 1956. Application forms from Group Secretary, Management Committee, General Hospital, London Road, Croydon. (6370)

WELSH REGIONAL HOSPITAL BOARD

REGISTRAR in Orthopaedic Surgery
based at Prince Edward War Memorial Hospital, Rhyl, to serve Clwyd and Deeside Hospital Management Committee. Also required to assist in treatment of long-stay Orthopaedic cases at area sanatorium. Subject to review end of first year. Forms of application from S.A.M.O., Temple of Peace, Cathays Park, Cardiff, within 14 days. (6504)

SOUTH-WESTERN REGIONAL HOSPITAL BOARD

APPOINTMENT OF CLINICAL ASSISTANT
Applications are invited from registered medical practitioners in general practice for the appointment of Clinical Assistant in Orthopaedic and Traumatic Surgery to undertake two weekly sessions at the Royal United Hospital, Bath. The successful candidate will work under the general direction of the Consultant Orthopaedic Surgeons attached to the Bath Hospitals Group. Payment will be at the rate of £175 per annum per weekly 3½ hour session. The appointment will be held for one year. Applications, stating date of birth, qualifications and experience, together with the names and addresses of two referees, should be sent to the Secretary of the Regional Hospital Board, 27, Tyndalls Park Road, Bristol, 8, not later than August 18, 1956. (6531)

CHERTSEY, SURREY, ST. PETER'S HOSPITAL (Late Botleys Park War Hospital) (430 beds)

ORTHOPAEDIC HOUSE SURGEON
required from August 28, 1956. 100 Orthopaedic beds. S.H.O. or H.O. (Intern grade). Post recognized for F.R.C.S. and Pre-registration service. Preference given to provisionally registered candidates. Salary in accordance with terms and conditions of National Health Service. Applications, together with names and addresses of referees, to be sent to the Physician Superintendent, St. Peter's Hospital, Chertsey, as soon as possible. (6304)

GLASGOW, VICTORIA INFIRMARY

Applications are invited for the post of
SENIOR HOUSE OFFICER in Orthopaedics
for duties at the Victoria Infirmary and a large unit at the Victoria Auxiliary Infirmary at Philipshill. The post, which is tenable for one year, is resident at Philipshill and is vacant as from September 1, 1956. Applications, with names of two referees, should be sent to the Secretary, Board of Management for Glasgow Victoria Hospitals, 24, St. Vincent Place, Glasgow, C.1. (6457)

ILFORD AND BARKING GROUP HOSPITAL MANAGEMENT COMMITTEE

There is a vacancy for a
SENIOR HOUSE OFFICER
Orthopaedic Department, King George Hospital, Ilford (General Hospital 211 beds). Salary will be at the rate of £745 per annum, less emoluments. Recognized for F.R.C.S. Applications should have been registered not less than one year and should send applications, accompanied by copies of three testimonials, to the undersigned within seven days of the appearance of this advertisement.—H. F. Harris, Group Secretary. (6322)

LEEDS (near), WOOLANDS ORTHOPAEDIC HOSPITAL, Rawdon (92 beds)

SENIOR HOUSE OFFICER (Orthopaedics)
required. Applications, stating age, nationality, qualifications and experience, with copy testimonials, to the Secretary, Royal Infirmary, Bradford. (6488)

NEWCASTLE-UPON-TYNE HOSPITAL MANAGEMENT COMMITTEE

Newcastle General Hospital (844 beds)

SENIOR HOUSE OFFICER
required in the Orthopaedic Department. Applications should be sent addressed to the Secretary, Newcastle General Hospital, Westgate Road, Newcastle-upon-Tyne, 4, together with the names of two referees. (6430)

OLDHAM ROYAL INFIRMARY

APPOINTMENT OF SENIOR HOUSE OFFICER (Orthopaedics) (resident)
Applications are invited for the appointment of Senior House Officer in the Fracture and Orthopaedic Service at the above Hospital. Applications should be forwarded to the Group Secretary, Oldham and District Hospital Management Committee, Central Offices, Rochdale Road, Oldham. (6482)

TUNBRIDGE WELLS GROUP HOSPITAL MANAGEMENT COMMITTEE

Pembury Hospital, Pembury, near Tunbridge Wells

Applications invited for appointment of
HOUSE SURGEON (Senior House Officer)
to Orthopaedic Unit. Post vacant September 1, 1956; recognized for F.R.C.S.(Eng.) and tenable for one year. Work includes treatment of long- and short-stay cases and traumatic surgery with large Out-patient and Fracture Clinics. National Health Service salary, less £150 per annum for board, lodging, etc. Accommodation for a married man could be arranged. Apply, stating age, qualifications and experience, with three testimonials, to Group Secretary, Sherwood Park, Pembury Road, Tunbridge Wells. (6187)

WIGAN, ROYAL ALBERT EDWARD INFIRMARY (200 beds)

SENIOR HOUSE OFFICER in Orthopaedic Surgery
Post vacant September 1. Applications to Secretary. (5763)

BEVERLEY, YORKSHIRE, WESTWOOD HOSPITAL (229 beds)

ORTHOPAEDIC HOUSE SURGEON
(1st, 2nd, or 3rd post)
Married accommodation available. Offers good opportunity for general experience in busy acute general hospital. Approved pre-registration post. Fully registered practitioners may apply. Recognized for F.R.C.S. Vacant now. Apply Group Secretary. (6323)

BLACK NOTLEY HOSPITAL, Braintree, Essex (516 beds)

Applications invited for post of
HOUSE OFFICER (Orthopaedic Surgery)
Duties include care of cases from London Hospital Orthopaedic Department. First, second, third or pre-registration post; tenable for 6 months. Recognized for F.R.C.S. Applications, with copies of three testimonials, to Group Secretary, Colchester H.M.C., 14, Pope's Lane, Colchester, Essex. (6532)

GUILDFORD ROYAL SURREY COUNTY HOSPITAL—233 beds

HOUSE SURGEON
required to Orthopaedic & Traumatic Unit. The post is tenable for six months from September 17, is recognized for the F.R.C.S. examination and is open to pre-registration candidates. The unit deals with many traumatic cases. Applications with copies of three testimonials should be sent to the Hospital Secretary as soon as possible. (6122)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

St. Bartholomew's Hospital, Rochester (Recognized for the F.R.C.S.)

ORTHOPAEDIC HOUSE SURGEON
Applications are invited for this pre-registration post, vacant now. If held by a registered practitioner post will be limited to six months. Salary £425 to £525 according to experience. Applications, stating age, qualifications, nationality and experience, to be addressed to the Hospital Secretary. (6469)

NORTH-WEST DURHAM HOSPITAL MANAGEMENT COMMITTEE

Shotley Bridge General Hospital, Shotley Bridge, Consett, Co. Durham

Applications are invited for the resident post of:
HOUSE OFFICER (Orthopaedic)
which is recognized for pre-registration purposes. Salary £425 to £525 per annum according to experience. Deduction of £125 per annum for board, lodging, etc. Six months' appointment. Applications, stating age, qualifications, experience, and enclosing copies of two recent testimonials, to the Group Secretary. (6436)

BIRKENHEAD HOSPITAL MANAGEMENT COMMITTEE

General Hospital, Birkenhead (174 beds)

HOUSE SURGEON
for duties mainly with the Orthopaedic and E.N.T. firms for six months from September 1, 1956. Post approved for pre-registered practitioner and for the M.R.C.S. examination. Apply, within one week, stating age, qualifications, experience, with copies of two recent testimonials, to Secretary, above Committee, St. James' Hospital, Birkenhead. (Pr.6477)

BRADFORD ROYAL INFIRMARY (507 beds)

HOUSE OFFICER (Orth./Cas.)
required. Recognized for Pre-registration and F.R.C.S. purposes. Applications in writing, stating age, nationality, and two referees, to the Secretary. (Pr.6489)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

Royal Portsmouth Hospital

HOUSE OFFICER (pre-registration)
Orthopaedic Department, 104 beds. Vacant now. Applications, stating age, experience and qualifications, together with the names of two referees, should be forwarded as soon as possible to E. H. Hurst, 35, Grove Road South, Southsea. (Pr.6371)

SOUTHAMPTON, ROYAL SOUTH HANTS HOSPITAL (278 beds)

ORTHOPAEDIC HOUSE SURGEON
required. Post recognized for pre-registration service and tenable for 6 months. The Hospital is the centre to which all trauma from a large industrial town and port is directed, thus providing excellent experience in the treatment of traumatic conditions; patients with orthopaedic conditions are also drawn from a wide area. Applications, with copies of testimonials, should be sent as soon as possible to the Group Secretary, Southampton Group Hospital Management Committee, Bullar Street, Southampton. (Pr.6442)

TEES-SIDE HOSPITAL MANAGEMENT COMMITTEE

Middlesbrough General Hospital, Ayresome Green Lane, Middlesbrough

Applications are invited for the appointment of a
HOUSE OFFICER (Orthopaedics)
at the above Hospital. The appointment is recognized for Pre-registration Service under the Medical Act, 1950, and includes some duties in the Casualty Department which is under the supervision of a full-time Senior Casualty Officer. Applications, stating full details, together with names of two referees, should be addressed to the Hospital Secretary. (Pr.5366)

PAEDIATRICS

EAST ANGLIAN REGIONAL HOSPITAL BOARD

PAEDIATRIC REGISTRAR
Ipswich and East Suffolk Hospital. Recognized for D.C.H. Appointment for one year, renewable for second year. Applications, stating age, experience, and the names of three referees, to Board's Senior Administrative Medical Officer, 117, Chesterton Road, Cambridge, by August 13, 1956. Candidates invited to visit hospital by direct arrangement with H.M.C. Secretary at hospital. (6372)

THE UNITED BIRMINGHAM HOSPITALS

The Children's Hospital, Ladywood Road, Birmingham, 16

Applications are invited for the post of
SURGICAL REGISTRAR
non-resident, vacant September 1, 1956. Excellent opportunities exist for performance of paediatric surgery in close association with the Consultant Surgeons of the Teaching Hospital. Preference will be given to candidates holding a higher qualification. Residence in the Hospital will be required when the Resident Surgical Officer is absent. Forms of application may be obtained from the House Governor and should be returned immediately.—O. A. Phalp, Secretary to the Board of Governors. (6549)

THE HOSPITAL FOR SICK CHILDREN Great Ormond Street, London, W.C.1

There will be vacancies on November 15, 1956, for a
HOUSE PHYSICIAN (Senior House Officer)
and for a
HOUSE SURGEON (Senior House Officer)
to the Orthopaedic and Plastic Departments. Further particulars and form of application, which must be returned not later than September 3, 1956, are obtainable from the undersigned.—H. F. Rutherford, House Governor and Secretary. (6494)

BRIGHTON, ROYAL ALEXANDRA HOSPITAL FOR SICK CHILDREN, Dyke Road (129 beds)

SENIOR HOUSE OFFICER
required from September 1, 1956. Candidates should have had experience in paediatrics. The post is recognized for D.C.H. Applications, stating age, nationality, experience, together with copies of two testimonials, and naming two referees, to the Administrative Officer as soon as possible. (6123)

CLEVELAND HOSPITAL MANAGEMENT COMMITTEE

The Children's Hospital, Durham Road, Stockton-on-Tees (84 beds)

Applications are invited for the post of
HOUSE OFFICER or alternatively SENIOR HOUSE OFFICER
(according to experience of candidate)
The appropriate salary and conditions of service being in accordance with the Ministry of Health Regulations. Applications, with copies of two recent testimonials, should be forwarded to the undersigned at West Lane Hospital, Middlesbrough, as early as possible.—L. Britain, Group Secretary. (6473)

Paediatrics—contd.

HAROLD WOOD HOSPITAL
Harold Wood, Essex (near London) (415 beds)

SENIOR HOUSE OFFICER (Paediatrics)
Main general and casualty hospital of Brentwood Group. Recognized for D.C.H. Salary £745 per annum, less £130 per annum for board and lodging. Apply to Hospital Secretary. (Tel. Ingrebourne 2881.) (6373)

NOTTINGHAM CHILDREN'S HOSPITAL
136 beds (Recognized for the D.C.H.)

Applications are invited for the post of
SENIOR HOUSE OFFICER (Medical)
becoming vacant early in September. The post is tenable for 6 months or a year by agreement. Applications, with copies of two testimonials, should be sent to the Secretary, Nottingham Children's Hospital, Chestnut Grove, Nottingham. (6458)

NOTTINGHAM CHILDREN'S HOSPITAL
136 beds (Recognized for the D.C.H.)

Applications are invited for the post of
SENIOR HOUSE OFFICER (Surgical)
becoming vacant in mid-September. The post is tenable for 6 months or a year by agreement. Applications, with copies of two testimonials, should be sent to the Secretary, Nottingham Children's Hospital, Chestnut Grove, Nottingham. (6455)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the post of
SENIOR HOUSE OFFICER, Paediatrics
for a period of 12 months, commencing October 1. The post is recognized for the D.C.H. Applications, stating age, qualifications and experience, together with recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (5975)

WARRINGTON GENERAL HOSPITAL

SENIOR HOUSE OFFICER (Paediatrics)
(Male or Female)
Applications are invited for the above post, which will become vacant on September 1, 1956. (Post recognized for D.C.H.) Scale of salary £745 per annum, less £130 for residential emoluments. Applications to be forwarded to: H. L. Boot, Group Secretary, Warrington & District Hospital Management Committee, c/o General Hospital, Warrington, Lancs. (6134)

WEST MANCHESTER H.M.C.

Park Hospital, Davyhulme (General Hospital 433 beds)

SENIOR HOUSE OFFICER (Paediatrics)
required; previous experience essential. Hospital has a midwifery unit of 73 beds, and the Children's Unit comprises 10 Thoracic Surgery and 26 Paediatric beds catering for other specialties. Hospital recognized for training for Diploma in Child Health. Application forms from Secretary. (6460)

AYLESBURY, BUCKS, STOKE MANDEVILLE HOSPITAL (609 beds)

HOUSE PHYSICIAN
for the Paediatric Department. The post qualifies for D.C.H. Duties will include care of children in Infectious Diseases Unit, Plastic Unit and Out-patients' Department, Royal Buckinghamshire Hospital. Recognized pre-registration post, applications from registered practitioners will be considered. Post vacant September 10, 1956. Apply, with copies of two testimonials, to the Administrative Officer. (6374)

BOLTON AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

Bolton District General Hospital (604 beds)

RESIDENT HOUSE PHYSICIAN
for the Department of Paediatrics. Not available to pre-registration candidates. Tenable for six months. Hospital recognized for D.C.H. Applications, with the names of two referees, to Group Secretary, The Royal Infirmary, Bolton. (6375)

BIRMINGHAM, 9, LITTLE BROMWICH GENERAL HOSPITAL

PAEDIATRIC HOUSE PHYSICIAN (male/female)
Vacant October 1, 1956. Recognized for D.C.H., includes duties Infectious Diseases Wards, Neonatal Department, and Clinics. Apply Physician Superintendent. (6324)

CARSHALTON, SURREY, QUEEN MARY'S HOSPITAL FOR CHILDREN
A general Children's hospital of 853 beds

HOUSE SURGEON (resident)
for acute general surgery required for six months. Applicants must have completed twelve months' pre-registration service. Applications, stating age, and qualifications, together with one recent testimonial and the names of two referees, should be submitted to the Group Secretary by August 18, 1956. (6305)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

St. Mary's Hospital

HOUSE PHYSICIAN (Paediatric)
Vacant August 15. Paediatric Unit of 53 beds, the post is recognized for candidates preparing for the D.C.H. Applications, stating age, experience and qualifications, together with the names of two referees, should be forwarded as soon as possible to E. H. Hurst, 35, Grove Road South, Southsea. (6376)

ROYAL HAMPSHIRE COUNTY HOSPITAL
Winchester (313 beds)

HOUSE PHYSICIAN (post-registration)
to the Paediatric Department. Vacant September 18. Preference will be given to applicants wishing to specialize in paediatrics. The department is recognized for the D.C.H. Applications, with copies of two testimonials, to the Group Secretary. (6443)

LEEDS, 14, SEACROFT HOSPITAL

HOUSE OFFICER
for Children's Surgical and E.N.T. Wards. Recognized pre-registration post. Applications to Chief Administrative Officer. (Pr.6437)

LEICESTER GENERAL HOSPITAL

Applications are invited for the pre-registration post of
PAEDIATRIC HOUSE PHYSICIAN
vacant October 1. Recognized for the D.C.H. Applications, stating age and qualifications, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (Pr.5977)

STOKE-ON-TRENT, CITY GENERAL HOSPITAL

HOUSE OFFICER (Paediatrics)
required, vacant very shortly. Pre-registration post. Detailed applications, with copy testimonials, to Group Secretary, Princes Road, Stoke-on-Trent. (Pr.5976)

TEES-SIDE HOSPITAL MANAGEMENT COMMITTEE

Middlesbrough General Hospital, Ayresome Green Lane, Middlesbrough

Applications are invited for the appointment of a
HOUSE PHYSICIAN (Paediatrics)
at the above Hospital. The Paediatric Unit is a very active one of 60 beds and cots for acute cases and a busy Out-patient Department. The post is recognized for Pre-registration Service and also for the D.C.H. examination. Applications, stating age, qualifications, experience, and giving two names for reference, should be forwarded to the Hospital Secretary. (Pr.5368)

PATHOLOGY

THE ROYAL MARSDEN HOSPITAL
Fulham Road, S.W.3

Applications are invited for the post of full-time
ASSISTANT PATHOLOGIST
(Senior Hospital Medical Officer grade) in the Department of Clinical Investigation. Applications (12 copies), together with names of three referees, should be sent to the House Governor, to reach him not later than August 25. (6551)

EASTERN REGIONAL HOSPITAL BOARD
Scotland

Pathology
Maryfield Hospital, Dundee

Applications are invited for the post of
ASSISTANT PATHOLOGIST
(Whole-time, S.H.M.O. grade)
at Maryfield Hospital, Dundee (370 beds), which is one of the two main general teaching hospitals associated with the University of St. Andrews. General experience is essential, but special experience in morbid anatomy and histology is desirable. Further particulars and forms of application from the Secretary to the Board, 430, Blackness Road, Dundee, with whom applications must be lodged not later than August 31, 1956. (6251)

LEEDS REGIONAL HOSPITAL BOARD

WHOLE-TIME ASSISTANT PATHOLOGIST
(S.H.M.O. Scale)
required for duties at hospitals in the Dewsbury, Batley and Mirfield Group, together with relief duties as required at hospitals in neighbouring groups. Experience in Morbid Anatomy an advantage. The successful candidate will work under the general guidance of the Consultant Pathologist and will be required to reside in Dewsbury. Applications (12 copies), stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6377)

ROYAL COLLEGE OF SURGEONS and ST. JAMES' HOSPITAL, Balham

Applications are invited for a two-year appointment of
REGISTRAR IN PATHOLOGY
(commencing October 1) who will work the first year at St. James' Hospital (resident or non-resident) and the second year in the Department of Pathology at the Royal College of Surgeons of England. Further particulars and application form, which must be completed and returned by August 22, from Group Secretary, St. James' Hospital, Balham, S.W.12. (6466)

BIRMINGHAM ACCIDENT HOSPITAL

REGISTRAR, PATHOLOGY
Vacant September. Previous experience essential. Recognized (12 months) for Diploma in Pathology. Further details from Consultant Pathologist. Application forms from Secretary, Selly Oak H.M.C., Oak Tree Lane, Birmingham, 29, to be returned before August 13, 1956. (6378)

LIVERPOOL REGIONAL HOSPITAL BOARD

Alder Hey Children's Hospital

Applications are invited for the post of
REGISTRAR IN PATHOLOGY
with duties mainly at the above hospital, at which is based the Department of Child Health of the University of Liverpool. The Laboratory has a twelve month recognition for the Diploma in Pathology. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 18, 1956.—Vincent Collinge, Secretary to the Board. (6478)

UNIVERSITY COLLEGE HOSPITAL
Gower Street, W.C.1

Applications are invited for the post of
RESIDENT PATHOLOGIST
(graded Senior House Officer)
in the Department of Clinical Pathology for a period of one year. Applications, with the names of two referees, to Administrator and Secretary by August 18, 1956. (5621)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

Established 1885

THE Medical Defence Union

EUSton 4244

MEMBERSHIP EXCEEDS 43,000

Subscription: £1 each year for first three years for newly qualified entrants, £2 for members of more than three years' standing.

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Full particulars from the Secretary (Dr. ROBERT FORBES), The Medical Defence Union, Ltd., Tavistock House South, Tavistock Square, London, W.C.1

Pathology—contd.

BEVERLEY, YORKSHIRE, WESTWOOD HOSPITAL

ASSISTANT PATHOLOGIST
(Senior House Officer Grade)

required in Area Laboratory with attendance at Branch Laboratory, Driffield. Offers experience all branches of pathology. Salary £745. Detailed applications to Group Secretary. (6325)

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE

SENIOR HOUSE OFFICER (Pathology)

Applications are invited for the above resident post. Apply, stating age, qualifications, experience, nationality, and two referees, to H. Wilkinson, Group Secretary, Bury General Hospital, Bury, Lancs. (6513)

LEICESTER GENERAL HOSPITAL

Applications are invited for the post of
SENIOR HOUSE OFFICER (Pathology)
vacant immediately. Recognized for the D.Path. Applications, stating age, qualifications and experience, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary. (5705)

NOTTINGHAM CITY HOSPITAL (811 beds)

Applications are invited for the post of
RESIDENT PATHOLOGIST (Senior House Officer)
Previous experience an advantage. Post vacant October 1, 1956. Applications, stating age, nationality, qualifications and experience, together with copies of not more than three testimonials, to be sent to the Group Secretary, Sherwood Hospital, Hucknall Road, Nottingham. (6558)

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Preston Royal Infirmary (480 beds)

SENIOR HOUSE OFFICER, Pathology

for Group Laboratory, vacant immediately. Applications, with names of two referees, to Group Secretary, Royal Infirmary, Preston. (6018)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

RESIDENT CLINICAL PATHOLOGIST
(Senior House Officer grade)

Applications are invited for the above appointment in the Department of Pathology of the Rochdale Group of Hospitals, vacant early October. The duties will consist mainly of clinical pathology, also general and emergency work and supervision of the blood banks. Previous pathology experience is not essential. Applications, with names and addresses of two referees, to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale, at once. (6233)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the post of
SENIOR HOUSE OFFICER, Pathology
vacant October 1. The post is recognized for D.Path. and D.C.P. Applications, stating age qualifications and experience, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (5978)

THE ROYAL FREE HOSPITAL GROUP

RESIDENT PATHOLOGIST (House Officer)

Applications are invited for the above post, vacant September 1, 1956, from registered men and women practitioners. The post is for six months, renewable for a further six months. Salary and conditions of service in accordance with the scale laid down by the Ministry of Health for House Officers. Application forms may be obtained from the Secretary, Royal Free Hospital, Gray's Inn Road, W.C.1, to whom they should be returned not later than August 23, 1956. (6408)

PHYSICAL MEDICINE

THE HOSPITAL FOR SICK CHILDREN
Great Ormond Street, London, W.C.1

There is a vacancy for a full-time non-resident
REGISTRAR
to the Department of Physical Medicine
(Registrar Grade)
The post is recognized to count for one year towards the Diploma in Physical Medicine. Further particulars and form of application, which must be returned not later than September 3, 1956, may be obtained from the undersigned.—H. F. Rutherford, House Governor and Secretary. (6496)

PSYCHIATRY

LONDON COUNTY COUNCIL

PSYCHIATRIST (part-time)
required for sessional work at residential schools and homes, duties to include advising staff on care of difficult children and the preparation of special reports. Remuneration £4 4s. a session of 1½ to 2½ hours, plus car mileage allowance. Particulars on application form obtainable from the Medical Officer of Health (PH/D.1/1497), The County Hall, Westminster Bridge, S.E.1, and returnable by August 14. (6499)

THE UNITED LIVERPOOL HOSPITALS
LIVERPOOL REGIONAL HOSPITAL BOARD
THE UNIVERSITY OF LIVERPOOL

Applications are invited for a joint appointment as
CONSULTANT PSYCHIATRIST
(Child Psychiatry)
(for seven notional half-days) to The United Liverpool Hospitals and the Liverpool Regional Hospital Board, and Lecturer in Child Psychiatry in the Department of Studies in Psychological Medicine of the University of Liverpool. The appointment is for three notional half-days a week for duty in The United Liverpool Hospitals, in the first instance as Consultant in Charge of the Department of Psychiatry in the Royal Liverpool Children's Hospital, and for four notional half-days a week for duty with the Liverpool Regional Hospital Board, in the first instance at Alder Hey Children's Hospital. In the University Department duties will be in connection with the undergraduate and postgraduate courses in psychological medicine and the person appointed will be remunerated for these by the University at the rate of £200 per annum. Candidates must possess a registrable qualification, and the M.D. of a University of the British Commonwealth or M.R.C.P. (London, Edinburgh or Ireland), and a special qualification in psychiatry. Applications, giving full particulars of age, qualifications and details of present and previous appointments together with the names of three persons to whom reference may be made, should reach the Secretary (from whom further particulars may be obtained), The United Liverpool Hospitals, 80, Rodney Street, Liverpool, 1, by August 18, 1956. (6453)

LEEDS REGIONAL HOSPITAL BOARD

WHOLE-TIME CONSULTANT PSYCHIATRIST
specializing in Mental Deficiency, required for duties mainly at Westwood Hospital (520 beds) and Ashfield House (50 beds), Bradford, and associated with Stansfield View Hospital, Todmorden (160 beds). Other duties may be required in the Halifax, Bradford (A), (B) and Bingley, Keighley, Skipton & Settle Groups. The person appointed will be Physician Superintendent of the above-named hospitals and will be required to reside in Bradford. The duties include those of Medical Arbiter for the Mental Deficiency Area Admission Bureau together with advising the Local Health Authorities on clinical aspects of Mental Deficiency as required. Applicants should hold the D.P.M., and have had experience in Mental Deficiency.

WHOLE-TIME ASSISTANT PSYCHIATRIST
(S.H.M.O. Scale) required for duties mainly at Scalebor Park Hospital, Burley-in-Wharfedale, and at associated clinics at Skipton, Bingley and Leeds. The hospital has at present 322 beds, shortly to increase by 80. National Health Service, private and amenity bed patients are admitted. Admission rate approximately 400 per year. Applicants should hold the D.P.M., and have at least 4 years' experience in Psychiatry. The post is resident or non-resident; accommodation is available for a single person.

WHOLE-TIME ASSISTANT PSYCHIATRIST
(S.H.M.O. Scale) required for duties in the Comprehensive Mental Health Service established between the Naburn and Bootham Park Hospital (614 beds) and York Local Health Authority. The successful candidate will work under the direction of the Physician Superintendent at Naburn and Bootham Park Hospital and will undertake 5 sessions in the service of York County Borough at the Mental Health Centre. The person appointed will be concerned with the expansion of out-patients' social therapeutic activities and with the Public Health aspects of clinical psychiatry. Two Psychiatric Social Workers are employed. Applicants should have at least four years' experience in Psychiatry, and hold the D.P.M. The person appointed to reside in York.

Applications (12 copies), stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6379)

MANCHESTER REGIONAL HOSPITAL BOARD

Whole-time Resident
ASSISTANT PSYCHIATRIST (S.H.M.O.)
at Lancaster Moor Hospital (2,500 beds), near Lancaster. Good accommodation. All modern forms of treatment undertaken. Candidates should have had wide experience in psychiatry, D.P.M. desirable. Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester, 8, to be returned by August 22, 1956. (6570)

MANCHESTER REGIONAL HOSPITAL BOARD

Whole-time resident
ASSISTANT PSYCHIATRIST (S.H.M.O.)
Mary Dendy Hospital, Alderley Edge, Cheshire (about 400 beds for mental defectives), with some duties at Cranage Hall Hospital, Cheshire (about 500 beds). Good experience essential. D.P.M. desirable. Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester, 8, to be returned by August 13, 1956. (6542)

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME SENIOR ASSISTANT PSYCHIATRIST
required for Pastures Hospital, Mickleover, near Derby, House available. Salary scale £1,575 by £50 to £2,025. Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, 10. Forms to be returned by September 1, 1956. (6395)

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME SENIOR ASSISTANT PSYCHIATRIST
required for Mapperley Hospital, Nottingham. House available. Salary scale £1,575 by £50 to £2,025 per annum. Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield. Forms to be returned by September 1, 1956. (6396)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

Marlborough Day Hospital,
38, Marlborough Place, N.W.8

PSYCHIATRIC REGISTRAR
for 8 sessions per week. Successful applicant required to undergo personal analysis, which will be given free of charge. Clinic may be visited by direct appointment. Application forms obtainable from, and returnable to, Group Secretary, Central Middlesex Group H.M.C., Acton Lane, N.W.10, by August 15, 1956. (6483)

MANCHESTER REGIONAL HOSPITAL BOARD

SENIOR REGISTRAR in Psychiatry
with duties in the Salford Group of Hospitals (Salford Royal and Hope Hospitals) and at Springfield Mental Hospital, Manchester. Application forms, obtainable from the Senior Administrative Medical Officer of the Board, Cheetwood Road, Manchester, 8, should be returned by August 20, 1956. (6544)

NORTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the post of
SENIOR REGISTRAR in Psychiatry
main duties at Kingseat Hospital under the Board of Management for the Aberdeen Mental Hospitals. Candidates should have experience in their specialty and preferably hold an appropriate higher qualification. Applications, giving two names for reference, should be submitted by August 25, 1956, to the Secretary, 1, Albyn Place, Aberdeen, from whom further particulars may be obtained. (6109)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

REGISTRAR IN PSYCHIATRY
(resident or non-resident) required at Three Counties Hospital (Mental), Arlesey, Beds (1,300 beds). All forms of treatment carried out and out-patient Clinics held at the local General Hospitals. Facilities for research work and for attendance at D.P.M. and other courses in London. Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, the Medical Superintendent, Three Counties Hospital, Arlesey, Beds, by August 14, 1956. (6559)

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for an appointment as whole-time
SENIOR REGISTRAR in Psychiatry
to fill a vacancy in the approved trainee establishment at St. Augustine's Hospital, Chartham Down, near Canterbury. Candidates should possess the D.P.M. and have had wide experience in General Medicine. The appointment will be in accordance with the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales) and will be for one year in the first instance. The post will include opportunities for gaining further experience in a wide range of Psychiatry, including attendance at adult out-patient clinics. A house will be available for a married practitioner. Applications, giving particulars of age, qualifications and experience, with relevant dates, together with the names and addresses of three referees, should be sent to the Secretary, Registrars Committee, South-East Metropolitan Regional Hospital Board, 11, Portland Place, London, W.1, not later than August 18, 1956. (6326)

Psychiatry—contd.

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME NON-RESIDENT SENIOR REGISTRAR IN CHILDREN'S PSYCHIATRY required. The post, intended to give experience with a view to specializing in children's psychiatry, is attached to the Mapperley Hospital, Nottingham, but is integrated with the child guidance clinics of the Nottingham City and County Councils. D.P.M. essential. Appointment for one year in first instance, reviewable annually. Application forms and further details from Senior Administrative Medical Officer, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield. Forms to be returned by August 18, 1956. (6020)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the appointment of a **SENIOR REGISTRAR**

at Stratheden Mental Hospital, Cupar, Fife. During the tenure of the post opportunities for interchange of duty and training at other centres in the Region may be available under joint arrangements between the South-Eastern Regional Hospital Board and the Department of Psychological Medicine of the University of Edinburgh. Applicants must hold a Diploma in Psychological Medicine or a higher qualification in medicine. A flat is available. Applications, giving particulars of age, qualifications and previous experience, together with the names of three referees, should be sent to the Secretary, South-Eastern Regional Hospital Board, 11, Drumsheugh Gardens, Edinburgh, 3, by August 25. (6444)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the appointment of **REGISTRAR**

to the Rosslynlee and Haddington Mental Hospitals Group. During the tenure of the post opportunities for interchange of duty and training at other centres in the Region may be available under the joint training scheme of the South-Eastern Regional Hospital Board and the Department of Psychological Medicine of the University of Edinburgh. Applications, giving particulars of age, qualifications and previous experience, together with the names of two referees, should be sent to the Secretary, South-Eastern Regional Hospital Board, Scotland, 11, Drumsheugh Gardens, Edinburgh, 3, by August 25, 1956. (6461)

SOUTH-EASTERN REGIONAL HOSPITAL BOARD, Scotland

Applications are invited for the appointment of a **SENIOR REGISTRAR**

to the Royal Edinburgh Hospital for Mental and Nervous Disorders. The hospital, which is linked with the University Department of Psychological Medicine and includes the professorial unit in the Jordanburn Nerve Hospital, offers exceptional opportunities for varied clinical work, for teaching and research. During the tenure of the post opportunities for interchange of duty and training at other centres in the Region may be available under arrangements made between the South-Eastern Regional Hospital Board and the University Department of Psychological Medicine. Single accommodation is available. Applicants must hold a Diploma in Psychological Medicine or a higher qualification in medicine. Applications, giving particulars of age, qualifications and previous experience, together with the names of three referees, should be sent to the Secretary, South-Eastern Regional Hospital Board, Scotland, 11, Drumsheugh Gardens, Edinburgh, 3, by September 1, 1956. (6560)

KINGSEAT HOSPITAL
Newmachar, Aberdeenshire: a modern Mental Hospital of 820 beds

Applications are invited for the following posts

(1) REGISTRAR

Salary £850 in 1st year and £965 in 2nd with deduction of £150 for board, etc.

(2) SENIOR HOUSE OFFICERS

Salary £745, less £150 for board, etc.

The successful candidates will be expected to co-operate in the work of the University Department of Mental Health. Applications, giving age, details of experience, present post, and names of two referees, to the Secretary, Aberdeen Mental Hospitals, 62, Queen's Road, Aberdeen, within fourteen days of this advertisement. (6533)

BURTON-ON-TRENT HOSPITAL MANAGEMENT COMMITTEE

St. Matthew's Hospital, Burntwood, Lichfield (1,350 Mental Beds)

JUNIOR HOSPITAL MEDICAL OFFICER (Psychiatry)

required. Resident accommodation available. Facilities for taking a D.P.M. Course at Birmingham University. Applications, with two referees, to Medical Superintendent. (6446)

CARLISLE, GARLANDS HOSPITAL (1,060 Beds)

Applications are invited for the post of **JUNIOR HOSPITAL MEDICAL OFFICER**

at the above mental hospital. Resident post. Flat is available for which a deduction will be made. Salary Scale £775 by £50 to £1,075 per annum. Appointment subject to the National Health Service (Superannuation) Regulations and to the Conditions and Terms of Service laid down by the Minister of Health. Applications, stating age, qualifications and experience, and the name of two referees, should be sent to the Medical Superintendent as soon as possible. (6417)

GLOUCESTER, HORTON ROAD AND CONEY HILL HOSPITALS (1,450 beds)

Applications invited for the appointment of **TWO JUNIOR HOSPITAL MEDICAL OFFICERS**

Hospital serves the North Gloucestershire Clinical Area, including Gloucester, Cheltenham, Stroud and Forest of Dean. High admission rate (800). All modern methods of treatment. New units provided for treatment of neurotics and alcoholics. Expanding Out-patient services, long-stay annexes and social clubs. Encouragement and opportunity for study. Salary and conditions Whitley Council. Single accommodation available. Married accommodation a possibility. Applications, with names of three referees, to Medical Superintendent within 14 days. (6445)

LANCASTER MOOR HOSPITAL, Lancaster (Regional Mental Hospital)

JUNIOR HOSPITAL MEDICAL OFFICER

Applications invited for the post of J.H.M.O. (Resident). Unfurnished flat available for married applicants; furnished quarters for single persons. Hospital recognized for D.P.M. and facilities granted for attending neighbouring universities. All modern methods of investigation and treatment (Deep Insulin, etc.) carried out; O.P. Clinics; Hospital serving N. Lancashire and Lake District. Post for initial period of 4 years, but renewable if services satisfactory. Applications, giving names and addresses of two referees, to Medical Superintendent. (6552)

MONTROSE, ANGUS, SCOTLAND, ROYAL MENTAL HOSPITAL (944 beds)

Applications are invited for the post of **JUNIOR HOSPITAL MEDICAL OFFICER (Male or female)**

A self-contained house, partially furnished, is available for a married man. Single furnished quarters are also available. All subject to appropriate deductions. Previous experience in Psychiatry is not essential. Salary and conditions of service in accordance with National Scales. Applications, stating age, qualifications and experience, together with the names and addresses of two referees, should be forwarded immediately to the Physician Superintendent. (6561)

MORPETH, NORTHUMBERLAND, NORTHGATE AND DISTRICT HOSPITAL

JUNIOR HOSPITAL MEDICAL OFFICER

The hospital consists of four units with a total of 638 beds for mental defectives of all ages and grades. A modern unfurnished flat is available at the Burnholme Unit, Stannington, at an inclusive rental of £3 12s. 1d. per month. Salary £775 by £50 to £1,075 per annum. Applications, stating age, qualifications, experience, and names of two referees, to the Medical Superintendent within 14 days. (6562)

WELLS, SOMERSET, MENDIP HOSPITAL

Applications are invited for the appointment of resident

JUNIOR HOSPITAL MEDICAL OFFICER

at the above Mental Hospital. Salary and conditions of service in accordance with the Whitley Council terms for Hospital Medical Staff. A modern bungalow is available at a rent of £69 per annum inclusive of rates. Facilities are available for studying for the D.P.M. Applications, giving particulars and names and addresses of two referees, to be addressed to the Physician Superintendent, Mendip Hospital, Wells, Som. (6149)

BOW GROUP HOSPITAL MANAGEMENT COMMITTEE

St. Clement's Hospital, London, E.3

SENIOR HOUSE OFFICER

required for Psychiatric Unit consisting of 24 observation beds and 36 beds for treatment of neuroses and early psychoses. Unit run in conjunction with the London and Claybury Hospitals. Post recognized for D.P.M. Vacant now. Apply to Group Secretary, Committee Offices, 2a, Bow Road, E.3, with names of three referees. (6467)

LANCASTER MOOR HOSPITAL, Lancaster (Regional Mental Hospital)

Applications invited for post of **SENIOR HOUSE OFFICER (Resident)**

Board and residence for unmarried applicant available for which a charge of £140 to £160 per annum is made. Hospital, which has 2,700 beds, serves North Lancashire, Westmorland and parts of the West Riding of Yorkshire, and has an admission rate of almost 800, of which 80% are voluntary. All modern forms of treatment are carried out. Facilities afforded to attend D.P.M. course. Salary according to National Terms and Conditions of Service. Apply Medical Superintendent. (6101)

SOUTHALL, MIDDLESEX, ST. BERNARD'S HOSPITAL FOR NERVOUS & MENTAL DISORDERS

Application is invited for the post of **SENIOR HOUSE OFFICER**

resident or non-resident. Facilities are afforded junior staff to become versed in all branches of psychiatry. N.H.S. salary and conditions. Applications, giving full details, and copies of three recent testimonials, should be sent to the Physician Superintendent, within fourteen days of the appearance of this advertisement. (6433)

RADIOLOGY

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

CONSULTANT RADIOLOGIST (Diagnostic)

2 half-days a week (preferably Thursday and Friday mornings) Willesden General Hospital, Harlesden Road, N.W.10 (127 beds). Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Secretary, North-West Metropolitan Regional Hospital Board, 11a, Portland Place, W.1, before September 3, 1956. (6518)

CHANNEL ISLANDS, JERSEY, GENERAL HOSPITAL

Applications are invited for the post of **CONSULTANT RADIOLOGIST**

part-time, 7 sessions, at a salary of £1,335 per annum, rising by 8 equal annual increments to a maximum of £1,970 per annum. The post is vacant on October 1, 1956. Private Radiological practice available. Applications to be submitted by August 18, 1956, to The President, Public Health Committee, General Hospital, Jersey, C.I. (6183)

LEEDS REGIONAL HOSPITAL BOARD

PART-TIME CONSULTANT RADIOLOGIST

(9 sessions per week) required for duties in the Hull and East Riding areas. The person appointed to reside in Hull. Applications (12 copies), stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6023)

MANCHESTER REGIONAL HOSPITAL BOARD

Whole-time, non-resident

ASSISTANT RADIOLOGIST (S.H.M.O.)

mainly at Withington Hospital (mainly acute, 1,000 beds), Manchester. Wide experience, higher qualifications essential; appointee to work under general guidance of consultant. Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester, 8, to be returned by August 13, 1956. (6543)

BOARD OF MANAGEMENT FOR THE ABERDEEN GENERAL HOSPITALS

Applications are invited for the appointment as **REGISTRAR**

in the Department of Radiology at the Aberdeen Royal Infirmary. The post is a whole-time one and is non-resident. Salary and conditions of service in accordance with the terms issued by the Department of Health for Scotland. Applications, with the names of two referees, should be lodged with the Secretary, Aberdeen General Hospitals, P.O. Box 92, 62, Queen's Road, Aberdeen, within 14 days of the appearance of this advertisement. (6447)

THE UNITED SHEFFIELD HOSPITALS

Applications invited for the non-resident post of **REGISTRAR to the Department of Radiology** at the Royal Infirmary/Royal Hospital Units. Applications, with names of three referees, should be sent not later than August 18, 1956, to the Chief Administrative Officer, The United Sheffield Hospitals, West Street, Sheffield, 1. (6462)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

RADIOTHERAPY

MANCHESTER REGIONAL HOSPITAL BOARD

Whole-time CONSULTANT RADIOTHERAPIST Christie Hospital and Holt Radium Institute, Manchester. F.F.R. essential, other higher medical or surgical qualifications desirable. Application forms from the Senior Administrative Medical Officer to the Board, Cheetwood Road, Manchester, 8, to be returned by August 21, 1956. (6569)

LEEDS REGIONAL HOSPITAL BOARD

WHOLE-TIME ASSISTANT RADIOTHERAPIST (S.H.M.O. Scale)

in the Regional Radiotherapy Service for duties mainly at the Bradford Radium Institute together with relief duties as may be required at Regional Centres in Hull and Leeds. The person appointed to work under the supervision of the Senior Consultant in Radiotherapy and to reside in the Bradford area. Applications (12 copies), stating age, qualifications and details of appointments held, showing dates, with the names and addresses of three referees, to the Secretary, Park Parade, Harrogate, by August 25, 1956. (6380)

LIVERPOOL REGIONAL HOSPITAL BOARD

Applications are invited for the post of
WHOLE-TIME ASSISTANT RADIOTHERAPIST (Senior Hospital Medical Officer)

to work under the guidance of the Director of Radiotherapeutic Services at the Radium Institute, from whom any further information may be obtained. Applicants must possess a Diploma in Radiology and have previous experience in Radiotherapy. Preference will be given to candidates holding the F.F.R. or other higher qualification. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 25, 1956.—Vincent Collinge, Secretary to the Board. (6435)

ROYAL NORTHERN HOSPITAL, N.7

SENIOR HOUSE OFFICER (trainee)

for Radiotherapy Departments, Royal Northern Hospital, Holloway, and Prince of Wales Hospital, Tottenham. Hospitals can be visited by appointment. Applications, with copies of recent testimonials, to be sent to Hospital Secretary by August 18, 1956. (6497)

SURGERY

NORTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

PART-TIME CONSULTANT SURGEON

to Metropolitan Hospital, Kingsland Road, E.8 (two sessions a week).

PART-TIME CONSULTANT SURGEON

to St. Andrew's Hospital, Devons Road, Bow, E.3 (six sessions a week).

Applications (six copies), and names of three referees, should reach the Secretary, 11a, Portland Place, London, W.1, by Saturday, August 25. (6519)

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for an appointment as whole-time

REGISTRAR IN GENERAL SURGERY

to fill a vacancy in the approved trainee establishment in the Camberwell group of hospitals, as from October 21, 1956. The appointment will be in accordance with the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales), and will be for one year in the first instance. Applications, giving particulars of age, qualifications and experience, with relevant dates, together with the names and addresses of two referees, to be sent to the Secretary, Registrars Committee, South-East Metropolitan Regional Hospital Board, 11, Portland Place, W.1, not later than August 18, 1956. (6328)

SOUTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

South London Hospital for Women and Children Clapham Common, S.W.4

Applications are invited from Registered Women Medical Practitioners for the post of

FULL-TIME SURGICAL REGISTRAR

resident or non-resident (if living near the Hospital). The post will become vacant on October 31, 1956. The appointment is normally for two years, but subject to review at the end of the first year. Canvassing will disqualify, but candidates are not precluded from visiting the Hospital if they so desire. For form of application apply (enclosing a stamped addressed envelope) to the Secretary, Lambeth Group Hospital Management Committee, Renfrew Road, S.E.11, to whom completed applications should be returned not later than August 18, 1956. (6381)

THE LONDON HOSPITAL, Whitechapel, E.1

Applications are invited for the post of

REGISTRAR IN GENERAL SURGERY

becoming vacant on October 1, 1956. A higher qualification, although desirable, is not essential. The appointment will be for one year, renewable for two further years, of which one year will be spent in the Department of Thoracic Surgery or at the hospital's Annexe at Brentwood. Applications (12 copies), giving the names and addresses of three referees, should be received by the undersigned by August 31, 1956.—H. Brierley, House Governor. (6501)

WESTMINSTER HOSPITAL
St. John's Gardens, S.W.1, and
KINGSTON HOSPITAL, 26, Wolverton Avenue, Kingston-on-Thames, Surrey

JOINT APPOINTMENT OF SENIOR SURGICAL REGISTRAR

Applications invited for above post to start December 1, 1956. Annual appointment up to 4 years. Successful candidate will work at Kingston Hospital for approximately 2 years, then at Westminster Hospital. Candidates must be F.R.C.S. Applications (14 copies), with names of three referees, to reach House Governor, Westminster Hospital by August 25. (6490)

ALTON, HENRY GAUVAIN HOSPITAL (Lord Mayor Treloar Group Hospital Management Committee)

Applications are invited for the post of whole-time

REGISTRAR

in hospital of 114 beds for Surgery, Non-pulmonary Tuberculosis and Orthopaedics. Post vacant early in September for one year, renewable for a second. Preference given to candidates holding F.R.C.S. Person appointed to act as deputy to Surgeon Superintendent. Residence in house near hospital can probably be provided for married man. Write for application form to the Secretary, Lord Mayor Treloar Goup Hospital Management Committee, Treloar Hospital, Alton, Hants. (6550)

CARSHALTON, QUEEN MARY'S HOSPITAL FOR CHILDREN (853 beds)

SURGICAL AND ORTHOPAEDIC REGISTRAR

required for duties which include 60 orthopaedic beds and shared registrar responsibility for 60 acute and general beds. Applicants are invited to visit the hospital by appointment with the Physician Superintendent. Applications, which should be made on forms obtainable from the Group Secretary, should be returned by August 18, 1956. (6382)

EAST ANGLIAN REGIONAL HOSPITAL BOARD

SURGICAL REGISTRAR

West Norfolk and King's Lynn General Hospital (146 beds). Recognized for F.R.C.S. Appointment for one year, renewable for second year. Applications, stating age, experience and the names of three referees, to Board's Senior Administrative Medical Officer, 117, Chesterton Road, Cambridge, by August 13, 1956. Candidates invited to visit hospital by direct arrangement with H.M.C. Secretary at hospital. (6383)

LEIGH INFIRMARY, The Avenue, Leigh, Lancs (102 beds)

REGISTRAR IN GENERAL SURGERY

(resident) for the above acute general hospital. Post vacant August 31, recognized for F.R.C.S. Applications to Secretary, Wigan and Leigh Hospital Management Committee, Knowsley House, Wigan. (6545)

LIVERPOOL REGIONAL HOSPITAL BOARD

St. Catherine's Hospital, Birkenhead

Applications are invited for the post of

RESIDENT SURGICAL REGISTRAR

with duties at the above hospital. The post is recognized for the F.R.C.S. Forms of application from, and to be returned to, Dr. T. Lloyd Hughes, Senior Administrative Medical Officer, Liverpool Regional Hospital Board, 19, James Street, Liverpool, 2, to be received not later than August 18, 1956.—Vincent Collinge, Secretary to the Board. (6479)

MANCHESTER REGIONAL HOSPITAL BOARD (South Manchester H.M.C.)

The Board invite applications from Registered Practitioners for the post of

RESIDENT SURGICAL OFFICER

Registrar Grade, at the Christie Hospital and Holt Radium Institute. Applications, with full details, including the names of two referees, to be forwarded to the Group Secretary, Withington Hospital, Manchester, 20, immediately. (6520)

MANCHESTER REGIONAL HOSPITAL BOARD

RESIDENT SURGICAL REGISTRAR

required in the Blackburn & District Group with duties mainly at Queen's Park Hospital, Blackburn (640 mainly general beds). Post recognized for F.R.C.S. Application forms obtainable from the Secretary of the Committee, Royal Infirmary, Blackburn, Lancs. (6291)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

RESIDENT SURGICAL OFFICER (Registrar grade)

required early August at Barnet General Hospital, Wellhouse Lane, Barnet, Herts (461 beds). Hospital may be visited by direct appointment. Application forms obtainable from, and returnable to, Group Secretary, Barnet Group H.M.C. 1, Wellhouse Lane, Barnet, Herts, by August 15. (6096)

NORTH-WEST METROPOLITAN REGIONAL HOSPITAL BOARD

WHOLE-TIME SURGICAL REGISTRAR

required September 1, 1956, at the Luton and Dunstable Hospital, Luton, Beds (250 beds). The post is recognized for F.R.C.S. The hospital may be visited by direct appointment. Application forms obtainable from the Secretary, Luton and Hitchin Group H.M.C., St. Mary's Hospital, Luton, Beds, and returnable by August 17, 1956. (6058)

RUGBY, HOSPITAL OF ST. CROSS (156 beds)

REGISTRAR, GENERAL SURGERY

Vacant October 9. Experience in specialty essential. Higher qualification desirable. Recognized F.R.C.S. Resident. Married quarters available. Application forms from Group Secretary, Coventry and Warwickshire Hospital, to be returned before August 13, 1956. Candidates may visit hospital. (6384)

SHEFFIELD REGIONAL HOSPITAL BOARD

WHOLE-TIME RESIDENT OR NON-RESIDENT SENIOR SURGICAL REGISTRAR (transitional appointment)

required at City General Hospital, Sheffield, for one year in first instance. The successful candidate to reside at the hospital when "on call." Applications invited from Senior Surgical Registrars in their fourth or subsequent years and from those who held such posts for three years or more, but vacated them after January 1, 1951. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 20, 1956, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (6385)

SHEFFIELD REGIONAL HOSPITAL BOARD

Montagu Hospital, Mexborough (168 beds) (Recognized for training for F.R.C.S. examination)

WHOLE-TIME RESIDENT SURGICAL REGISTRAR

required. Appointment for one year in first instance. Apply to Secretary, Sheffield Regional Hospital Board, Old Fulwood Road, Sheffield, by August 13, 1956, giving age, nationality, qualifications, present and previous appointments (with dates), naming three referees. (6386)

UNITED OXFORD HOSPITALS

Applications are invited for the post of

REGISTRAR IN GENERAL SURGERY

at the Radcliffe Infirmary from September 1, 1956, for one year in the first instance. Applications, on forms obtainable from the Administrator, Radcliffe Infirmary, Oxford, should be received not later than August 20, 1956. (6387)

WELSH REGIONAL HOSPITAL BOARD

REGISTRAR, GENERAL SURGERY

St. Woolos Hospital, Newport, Mon. (379 beds). Post covers 56 beds, recognized F.R.C.S. six months. Non-resident. Subject to review end first year. Application forms from S.A.M.O., Temple of Peace, Cathays Park, Cardiff, within 14 days. (6505)

WESTERN REGIONAL HOSPITAL BOARD

Applications are invited for the following appointments, which will be for one year in the first instance:

REGISTRAR IN SURGERY

for duties at Dunoon Cottage Hospital and Broadstone Hospital, Port Glasgow. House available in Dunoon.

REGISTRAR in General Surgery and Orthopaedics

based at the Royal Infirmary, Dumfries.

Applications (12 copies), stating date of birth, qualifications, experience, present appointment, and the names of three referees, to reach the Secretary, Western Regional Hospital Board, 64, West Regent Street, Glasgow, C.2, by August 18, 1956. These appointments are subject to the National Health Service (Scotland) (Superannuation) Regulations. (6527)

Surgery—contd.

WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE

Southlands Hospital, Shoreham-by-Sea, Sussex (427 beds)

Applications are invited for the post of
SURGICAL REGISTRAR

Post vacant from August 12, 1956. Post recognized by R.C.S. for Fellowship. Forms of application are available from the undersigned.—A. V. Oakton, Group Secretary, Worthing Group Hospital Management Committee, 129, Brighton Road, Worthing, Sussex. (6388)

NORTH & MID-CHESHIRE HOSPITAL MANAGEMENT COMMITTEE

Altrincham General Hospital

ASSISTANT SENIOR SURGICAL OFFICER (J.H.M.O. Grade)

Applications are invited for this post in a hospital of 130 acute beds with a busy Casualty Department. The appointee would be required to exercise control of this Department and also to assist R.S.O. with the general surgical work of the hospital. The post offers excellent opportunities of practical experience and post-graduate study to suitably qualified candidates and particularly those studying for higher surgical qualifications. Applications, with names of two referees, to Group Secretary, Sinderland Road, Altrincham. (5986)

SUNDERLAND AREA HOSPITAL MANAGEMENT COMMITTEE

Team No. 3—82 Surgical Beds

Applications are invited for the appointment of
JUNIOR HOSPITAL MEDICAL OFFICER or SENIOR HOUSE OFFICER

according to experience, at Ryhope General Hospital. This appointment also includes Out-patient experience at the Royal Infirmary and the Children's Hospital, Sunderland. The post, which is recognized for the F.R.C.S. examination, is vacant on September 10, 1956. Apply immediately, naming two referees, to the Hospital Secretary, Leeholme Hospital, Easington, Co. Durham. (6412)

LONDON JEWISH HOSPITAL Stepney Green, E.1 (130 beds)

Applications are invited for the post of
RESIDENT SENIOR HOUSE OFFICER (Surgical Department)

Post vacant September 17, 1956. Salary, etc., in accordance with National Scale. Applications, with copies of testimonials, to be sent to the Hospital Secretary. (6082)

ST. MARY'S HOSPITAL, W.2

Applications are invited for the post of part-time Out-patient
SURGICAL ASSISTANT

for three notional half-days per week (Monday p.m., Wednesday a.m., Wednesday p.m.) graded "Senior House Officer." This appointment is designed for men or women who have already passed their primary F.R.C.S. and is ideally suited to those reading for the final, as a large number of clinical cases are available; it will be for a first period of twelve months as from a date to be arranged. Applications, stating nationality, date of birth, permanent address, qualifications, with dates, details and National Health Service gradings of previous and present appointments, together with the names and addresses of three referees, should reach Alan Powditch, House Governor, not later than August 14, 1956. (6169)

BOSTON COMBINED HOSPITALS (319 beds)

London Road Hospital

SENIOR HOUSE OFFICER

mainly Fractures and General Surgery. One of two posts. Resident. Details of age, qualifications, posts held and two names for reference to the Hospital Secretary, London Road Hospital, Boston, Lincs. Locum welcomed for interim period. (6062)

DERBY, CITY HOSPITAL

HOUSE SURGEON (Pre-registration) or SENIOR HOUSE OFFICER (Surgical)

The post is recognized for the F.R.C.S. Vacant September 12. Apply, stating full details, together with copies of two recent testimonials, to Medical Superintendent. (6024)

LINCOLN, COUNTY HOSPITAL

Applications are invited for the post of
SENIOR HOUSE OFFICER in Surgery

which is now vacant. The post is recognized for F.R.C.S. Apply, with full particulars and references, to the Group Secretary. (5649)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

All Saints' Hospital, Chatham

SENIOR HOUSE OFFICER in General Surgery

required from September 8, 1956. The appointment will be for twelve months at a salary of £745 per annum, less £150 for residential emoluments. Applications, giving details of age, qualifications and experience, with copies of three recent testimonials, to be addressed to the Hospital Secretary. (6470)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

Sheppey General Hospital, Minster, Isle of Sheppey, Kent

HOUSE SURGEON (Senior House Officer grade)

Applications are invited from registered medical practitioners with previous hospital experience for the above post, vacant now (senior of three). Appointment will be for twelve months at a salary of £745 per annum. Suitable for candidate seeking further clinical experience and opportunity for reading for higher qualifications. Applications, stating age, qualifications, nationality and experience, to be addressed to the Hospital Secretary. (6472)

NEWPORT, MON., ST. WOOLOS HOSPITAL (379 beds)

SENIOR HOUSE OFFICER

required. (Non-resident.) Post is of a senior character. Surgical Department of 46 beds consists of Consultant engaged only here, House Surgeon and this post. Recognized F.R.C.S. for 6 months. Excellent experience. Write quoting two referees to T. A. Jones, Group Secretary, 64, Cardiff Road, Newport, Mon. (6390)

NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Ancoats Hospital

Applications are invited for the resident post of
SENIOR HOUSE OFFICER in Surgery

Recognized for F.R.C.S. Applications, with full details, and two referees, by August 13, 1956, to Group Secretary, Crumpsall Hospital, Manchester, 8. (6292)

NORTH MANCHESTER HOSPITAL MANAGEMENT COMMITTEE

Ancoats Hospital, Manchester, 4

Applications are invited for the post of
SENIOR HOUSE OFFICER in Surgery

to act as Assistant Resident Surgical Officer, and for duties in the Department of Orthopaedic Surgery. Recognized for F.R.C.S. Vacant September 6, 1956. Applications, with full details, and two referees, by August 13, 1956, to Group Secretary, Crumpsall Hospital, Manchester, 8. (6293)

NOTTINGHAM CITY HOSPITAL (811 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER (General Surgery)

Vacant September 12, 1956. The post is approved for the F.R.C.S. The officer appointed will also be required to undertake certain duties in the Orthopaedic Department. A deduction of £150 per annum will be made for residential emoluments. Applications, stating age, nationality, qualifications and experience, together with copies of not more than three testimonials, to be sent to the Hospital Secretary, City Hospital, Hucknall Road, Nottingham. (6563)

RICHMOND, SURREY, ROYAL HOSPITAL Acute General Hospital, 121 beds

SENIOR HOUSE OFFICER in Surgery

required. Resident post available for six or twelve months, vacant September 11, 1956. Applications immediately to Administrative Officer. (6330)

ROYAL WEST SUSSEX HOSPITAL, Chichester

SENIOR HOUSE SURGEON (Deputy R.S.O.)

required at Royal West Sussex Hospital, Chichester (202 acute beds). Post recognized for F.R.C.S. Resident staff of six—R.S.O., 3 H.S., R.M.O., and H.P. Salary £745 per annum, less residential charge. Vacant August 12, 1956. Applications, stating age, experience, qualifications, with references, or referees, to Senior Administrative Officer. (5888)

SCUNTHORPE HOSPITAL MANAGEMENT COMMITTEE

War Memorial Hospital, Scunthorpe (262 beds)

VACANCY FOR RESIDENT HOUSE SURGEON

late August. Pre-registration or S.H.O. Applications, naming two referees, to Group Secretary. (6025)

SOUTH CHESHIRE HOSPITAL MANAGEMENT COMMITTEE

Crewe and District Memorial Hospital (108 beds—acute)

RESIDENT S.H.O. (Surgical)

required at the above hospital (approved for F.R.C.S.), to take up duties August 18, 1956. Excellent surgical experience is available. Salary in accordance with Whitley Council Scale. Application, giving full particulars, age, qualifications, experience, etc., together with three names for reference, to be sent to the Group Secretary, Barony Hospital, Nantwich, Cheshire. (6564)

TEES-SIDE HOSPITAL MANAGEMENT COMMITTEE

Hemlington Hospital, Middlesbrough (282 beds)

Applications are invited for the appointment of
TWO SENIOR HOUSE SURGEONS

at the above hospital. Duties will cover all surgical beds of the hospital, which include acute surgery, gynaecology and plastic surgery. Applications, stating age, qualifications, and giving two names for reference, should be sent, as soon as possible, to the Hospital Secretary. (5980)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the post of
SENIOR HOUSE OFFICER, Surgical

vacant August 1. The post is tenable for one year with rotating duties in the Surgical, Orthopaedic and Casualty Departments and is recognized for the F.R.C.S. Applications, stating age, qualifications and experience, with copies of two recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary. (6329)

WARDE-ALDAM HOSPITAL, South Elmsall

Applications are invited for the post of
RESIDENT SURGICAL OFFICER (Senior House Officer grade)

Warde-Aldam Hospital is a general hospital of 39 beds (General and Orthopaedic Surgery and E.N.T.). Furnished flat available. The appointment is of attraction to surgeons reading for Fellowship. Applications, giving details of qualifications and previous experience, with names of two referees, to be forwarded to the undersigned not later than August 15, 1956.—D. G. Davies (Secretary), Great Northern House, Salter Row, Pontefract, Yorks. (6294)

YEOVIL HOSPITAL, Somerset

Applications are invited for the post of
RESIDENT SENIOR HOUSE OFFICER, Surgical

Yeovil is the main acute General Hospital of the Group and affords good all-round practical experience. Applications, giving age, experience, qualifications, nationality and names of three referees, to be sent to the Group Secretary, South Somerset Hospital Management Committee, 71, Higher Kingston, Yeovil. (6306)

PUTNEY HOSPITAL Lower Common, London, S.W.15

HOUSE SURGEON

Resident. Vacant, September 1, 1956. Open to registered practitioners and pre-registration candidates. Apply Hospital Secretary, enclosing copies of three recent testimonials, by August 15, 1956. (6283)

AMERSHAM GENERAL HOSPITAL

RESIDENT HOUSE SURGEON

required September 1, 1956. This appointment in a busy general hospital (including 136 acute beds, 6 residents) affords excellent experience. Post recognized for F.R.C.S. examinations. Pre-registration applicants considered. Apply, with names of two referees, to Secretary. (6331)

BEVERLEY, YORKSHIRE, WESTWOOD HOSPITAL (229 beds)

HOUSE SURGEON (1st, 2nd or 3rd post)

Vacant early September. General surgical duties, some orthopaedics. Offering good opportunity for general experience in busy acute General Hospital. Married quarters available. Recognized for F.R.C.S. Approved pre-registration post. Fully registered practitioners may apply. Applications to Group Secretary. (6332)

EAST RIDING GENERAL HOSPITAL Driffield, Yorkshire (247 beds)

HOUSE SURGEON (1st, 2nd, or 3rd post)

required now. Approved pre-registration post. Fully registered practitioners may apply. Apply Group Secretary, Westwood Hospital, Beverley, Yorkshire. (6333)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

Surgery—contd.

CAERNARVON AND ANGLESEY HOSPITAL MANAGEMENT COMMITTEE

Applications are invited for the post of
HOUSE SURGEON
at the C. & A. General Hospital, Bangor
(Recognized for F.R.C.S.)
The appointment is for a period of six months. Salary and conditions of service in accordance with those approved by the Ministry of Health. Applications, stating age, qualifications and experience, together with the names and addresses of two referees, to be forwarded to the Group Secretary, Plas Gwyn, Ffriddoedd Road, Bangor, within ten days of appearance of this advertisement. (6448)

MEDWAY AND GRAVESEND HOSPITAL MANAGEMENT COMMITTEE

St. Bartholomew's Hospital, Rochester
(Recognized for the F.R.C.S.)

HOUSE SURGEON GENERAL
Applications are invited for this pre-registration post, vacant now. If held by a registered practitioner post will be limited to six months. Salary £425 to £525 according to experience. Applications, stating age, qualifications, nationality and experience, to be addressed to the Hospital Secretary. (6471)

PONTYPRIDD AND RHONDDA HOSPITAL MANAGEMENT COMMITTEE

East Glamorgan Hospital, Church Village, near Pontypridd
(316 beds and large O.P. Department—Committee's Base Hospital, serving population of 174,000—Recognized for M.R.C.O.G., D.R.C.O.G., F.R.C.S., D.C.H., F.F.A., D.A.)

HOUSE OFFICER (Surgical)
(to include duties at Porth and District Hospital)
Applications, stating age, qualifications and experience, together with copies of two recent testimonials, to be sent immediately to the Group Secretary, Courthouse Street, Pontypridd. (6508)

ROCHDALE AND DISTRICT HOSPITAL MANAGEMENT COMMITTEE

HOUSE SURGEONS
required at Rochdale Infirmary, late August. Pre-registration candidates eligible for these posts which are recognized for six months' F.R.C.S. experience. Apply at once to Group Secretary, Central Offices, Birch Hill Hospital, Rochdale. (6234)

ROYAL WEST SUSSEX HOSPITAL, Chichester
(202 Acute Beds)

RESIDENT HOUSE SURGEON
required for six months' appointment. National salary scale for first, second, or third posts. Post approved for pre-registration practitioners. Also recognized for F.R.C.S. Seven residents, including R.S.O. and three House Surgeons. Vacant August 13, 1956. Applications, stating age, experience, qualifications, with references or referees, to Senior Administrative Officer. (5889)

SHREWSBURY HOSPITAL GROUP

Royal Salop Infirmary/Copthorne Hospital
(500 beds)

HOUSE SURGEON
Vacant September 2, 1956. Pre-registration candidates eligible. Recognized for the F.R.C.S. Applications, with copy testimonials, to Group Secretary, Royal Salop Infirmary, Shrewsbury. (6391)

WAKEFIELD, PINDERFIELDS GENERAL HOSPITAL

FULLY REGISTERED HOUSE OFFICER
required for General Surgical Department. £525 per annum. Residential accommodation at charge of £125 per annum. Written applications, giving full particulars of experience, etc., and two names and addresses for reference, should be addressed to W. Bowring, Group Secretary, Victoria Chambers, Wood Street, Wakefield. (6162)

WORTHING GROUP HOSPITAL MANAGEMENT COMMITTEE

Southlands Hospital, Shoreham-by-Sea, Sussex

HOUSE SURGEON
post recognized by R.C.S. for Fellowship; entails orthopaedic and general surgical duties; vacant August 13. Application forms to be obtained from, and returned to, Surgeon Superintendent, Southlands Hospital, Shoreham-by-Sea, Sussex.—A. V. Oakton, Group Secretary. (6055)

DREADNOUGHT SEAMEN'S HOSPITAL Greenwich, S.E.10

HOUSE SURGEON (Pre-registration)
required on September 4. Applications, stating age, nationality, qualifications and experience, with the names of three recent referees, should be sent to the Secretary at the above address not later than August 20. (Pr.6484)

GERMAN HOSPITAL, London, E.8
(General 157 beds)

Applications are invited for the six months' resident appointment (now vacant) of
PRE-REGISTRATION HOUSE SURGEON
and should be sent immediately to Group Secretary, Hackney Hospital, London, E.9, quoting GH/PHS. (Pr.6498)

ST. ANDREW'S HOSPITAL
Devons Road, Bow, E.3

Applications are invited for the appointment of
HOUSE SURGEON
Recognized pre-registration post. Vacant on September 11, 1956. Post is tenable for six months. Applications, stating age, and qualifications, with copies of at least one testimonial, should be sent immediately to the Hospital Secretary, St. Andrew's Hospital, Bow, E.3. (Pr.6540)

BURTON-ON-TRENT, THE GENERAL HOSPITAL

HOUSE SURGEON
required at the above hospital. Post recognized for Pre-Registration purposes. Apply, Group Secretary. (Pr.6563)

BURY AND ROSSENDALE HOSPITAL MANAGEMENT COMMITTEE

Bury General Hospital

Applications are invited for the post of
HOUSE OFFICER in Surgery (Pre-registration)
now vacant. Apply, stating age, experience and two referees, to H. Wilkinson, Group Secretary, Bury General Hospital, Bury, Lancs. (Pr.6138)

CHELMSFORD & ESSEX HOSPITAL (162 beds)

Applications are invited for the post of
RESIDENT HOUSE SURGEON
Pre-registration post. The post will become vacant on August 30, and offers good surgical experience and is recognized for the F.R.C.S. Applications, together with two recent testimonials, to the Secretary, Chelmsford Hospital Management Committee, London Road, Chelmsford. (Pr.5737)

HITCHIN, HERTS, LISTER HOSPITAL

Applications are invited for the post of
RESIDENT HOUSE SURGEON
Vacant August 24, 1956. Recognized as pre-registration post and for F.R.C.S. Applications to be sent to the Medical Administrator as soon as possible. (Pr.6064)

HUNTINGDON COUNTY HOSPITAL

Applications are invited for the post of
HOUSE OFFICER (Surgical)
now vacant. Post recognized for pre-registration purposes. Apply, with full particulars, and names of two referees, to Secretary, County Hospital, Huntingdon. (Pr.6093)

NEWMARKET GENERAL HOSPITAL, Suffolk

Applications are invited for the post of
HOUSE SURGEON
now vacant. Duties include surgical House charge of general surgical E.N.T. Post resident and available for six months, recognized for pre-registration. Applications, with copies of three testimonials, to the Medical Superintendent. (Pr.6163)

NORTHALLERTON HOSPITAL MANAGEMENT COMMITTEE

Friarage Hospital, Northallerton (341 beds)

Applications are invited for the appointment of resident
PRE-REGISTRATION HOUSE SURGEON
Post now vacant. Applications (two referees) to Group Secretary, Friarage Hospital, Northallerton. (Pr.6028)

NORTH STAFFORDSHIRE ROYAL INFIRMARY, Stoke-on-Trent

HOUSE OFFICER, General Surgery
required. Pre-registration post. Hospital recognized for F.R.C.S. Detailed applications, with copy testimonials, to Group Secretary, H.M.C., Princes Road, Stoke-on-Trent. (Pr.5981)

PORTSMOUTH GROUP HOSPITAL MANAGEMENT COMMITTEE

Saint Mary's Hospital (130 surgical beds)

HOUSE SURGEON (Pre-registration)
Posts vacant July 23, 29, and 30. Applications, stating age, experience, and qualifications, together with names of two referees, should be forwarded as soon as possible to E. H. Hurst, 35, Grove Road South, Southsea. (Pr.9031)

ROYAL BERKSHIRE HOSPITAL, Reading
(399 beds)

Applications are invited from provisionally registered medical practitioners (male and female) for resident post of
HOUSE SURGEON
Vacant August 21, 1956, and tenable for six months. Write, before August 10, stating age, qualifications with dates, nationality, present post, with copy of one recent testimonial, to the Secretary. (Pr.5868)

RYHOPE GENERAL HOSPITAL, near Sunderland

HOUSE SURGEON
required. Post recognized for pre-registration experience and for F.R.C.S. examination. Post vacant September. Apply, naming two referees, to the Hospital Secretary, Lecholme Hospital, Easington, Co. Durham. (Pr.6413)

STOKE-ON-TRENT, CITY GENERAL HOSPITAL

HOUSE OFFICER, General Surgery
vacant now. Pre-registration post. Hospital recognized for F.R.C.S. Detailed applications, with copy testimonials, to Group Secretary, H.M.C., Princes Road, Stoke-on-Trent. (Pr.5982)

THE LEICESTER ROYAL INFIRMARY

Applications are invited for the posts of
HOUSE SURGEON (3)
available for pre-registration candidates, vacant October 1. Recognized for F.R.C.S. Applications, stating age and qualifications, together with copies of recent testimonials, to the Group Secretary, No. 1 Hospital Management Committee, The Leicester Royal Infirmary, by August 8. (Pr.5983)

THORACIC SURGERY

SOUTH-EAST METROPOLITAN REGIONAL HOSPITAL BOARD

Applications are invited for an appointment as whole-time
REGISTRAR IN THORACIC SURGERY
for duty at the Regional Thoracic Unit at the Brook General Hospital, Shooters Hill, S.E.18, and also at Grove Park Hospital, Marvels Lane, Lee, S.E.12. The work includes both Tubercular and Non-Tubercular Chest Surgery. The appointment will be in accordance with the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales), and will be for one year in the first instance. Applications, giving particulars of age, qualifications and experience, with relevant dates, together with the names and addresses of two referees, to be sent to the Secretary, Registrars Committee, South-East Metropolitan Regional Hospital Board, 11, Portland Place, London, W.1, not later than August 18, 1956. (6334)

BIRMINGHAM, 9, YARDLEY GREEN HOSPITAL

REGISTRAR to Thoracic Surgical Unit (66 beds)
Resident or Non-resident. Tuberculous and non-tuberculous surgery undertaken. Experience in general surgery essential. If married, a house near hospital may be made available. Applications to Group Secretary, Yardley Green Hospital, Birmingham, 9, to be returned before August 13. Candidates may visit hospital. (6389)

NOTTINGHAM CITY HOSPITAL (811 beds)

Applications are invited for the post of
SENIOR HOUSE OFFICER
to the Department of Thoracic Surgery
Post vacant October 1, 1956. Salary £745 per annum, less £150 per annum for residential emoluments. The appointment will be for one year. Applications, stating age, nationality, qualifications and experience, together with copies of not more than three testimonials, to be submitted immediately to the Hospital Secretary, City Hospital, Hucknall Road, Nottingham. (6260)

WOLVERHAMPTON, THE ROYAL HOSPITAL
An Associated Hospital of the University of Birmingham Medical School

H.O. Thoracic and General Surgery
Vacant September 5. Also listed as pre-registration post. Apply Secretary, with copies of testimonials. (Pr.6440)

UROLOGY

ST. PETER'S, ST. PAUL'S AND ST. PHILIP'S HOSPITALS

RESIDENT SURGICAL OFFICER
(Senior Registrar Grade)
Required for St. Peter's Hospital on October 1, 1956. Applications invited from male candidates on the British *Register* who have completed their training in general surgery. Appointment for six months, with opportunity for a further six months if recommended. Candidates should be prepared to spend one year at the hospital if required. Applications (twelve copies), with twelve copies of three recent testimonials, should reach the House Governor, St. Peter's Hospital, Henrietta Street, W.C.2, by September 8, 1956. (6418)

Urology—contd.

PRESTON AND CHORLEY HOSPITAL MANAGEMENT COMMITTEE

Preston Royal Infirmary (400 beds)

UROLOGICAL REGISTRAR

Specialist department. F.R.C.S. preferable. One of two registrar posts. Resident or non-resident. Vacant September 1. Application forms obtainable from Group Secretary, Royal Infirmary, Preston, Lancs. (6029)

IMPORTANT: All intending applicants should read the revised NOTICE at the top of page 17

PUBLIC HEALTH

CITY OF BIRMINGHAM
Public Health Department

WHOLE-TIME ASSISTANT MEDICAL OFFICER (Male or Female) for Maternity and Child Welfare

Applications are invited for above appointment. The duties will be mainly in connection with Maternity and Child Welfare as well as the medical aspects of the care of deprived children in the care of the Children's Department. Salary scale £1,050 by £50 (3) by £55 (5) to £1,475 per annum, with placement on the scale according to qualifications and experience. Pension scheme (including Widows & Orphans), medical examination. Applications, giving full particulars of qualifications and experience, together with names of three persons to whom reference may be made, to be sent to Medical Officer of Health, Council House, Birmingham, 3, not later than August 13. (6201)

AMENDED ADVERTISEMENT
CITY OF STOKE-ON-TRENT EDUCATION COMMITTEE

APPOINTMENT OF DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER

Applications are invited for the post of Deputy Principal School Medical Officer. Salary scale: £1,520 to £1,955 per annum. Contributory superannuation. Candidates should have a Diploma in Public Health and considerable experience as a School Medical Officer. The appointment is terminable by three months' notice on either side. The successful candidate will be required to pass a medical examination. Application forms are obtainable from the undersigned, P.O. Box No. 23, Town Hall, Hanley, Stoke-on-Trent, to whom they should be returned by August 14.—H. Dibden, Chief Education Officer. (6295)

COUNTY BOROUGH OF BRIGHTON
Health Department

ASSISTANT MEDICAL OFFICER OF HEALTH

Applications are invited for the above post. Diploma in Public Health essential. Duties mainly B.C.G. Vaccination, Infant Welfare and Epidemiology. Salary £1,050 to £1,475 according to experience. Application forms and further details from the Medical Officer of Health, Royal York Buildings, Brighton, 1. W. O. Dodd, Town Clerk. (6428)

COUNTY BOROUGH OF DEWSBURY

DEPUTY MEDICAL OFFICER OF HEALTH AND DEPUTY PRINCIPAL SCHOOL MEDICAL OFFICER

Applications are invited for the appointment of Deputy Medical Officer of Health and Deputy Principal School Medical Officer of the County Borough of Dewsbury. Applicants should be registered medical practitioners and possession of a Diploma in Public Health is desirable. Preference will be given to candidates approved previously by the Ministry of Education for ascertainment of educationally sub-normal children. The salary is £1,303 6s. 8d. by 4 increments of £55 to £1,523 6s. 8d per annum, plus a car allowance (at present £108 per annum). Previous experience will be taken into consideration in determining the commencing point on this scale. Housing accommodation will be available if required. The appointment is permanent and superannuable and the successful candidate will be required to pass a medical examination. Particulars of the duties and other conditions of appointment, together with application forms, may be obtained from the Medical Officer of Health, Municipal Buildings, Halifax Road, Dewsbury, Yorkshire, to whom applications should be sent on or before Saturday, September 1, 1956.—A. Norman James, Town Clerk. (6266)

COUNTY BOROUGHS OF SUNDERLAND AND DARLINGTON EDUCATION COMMITTEES

Applications are invited from medical practitioners for appointment as

CONSULTANT PSYCHIATRIST
in the Child Guidance Clinics

for three days per week at Sunderland and two days at Darlington. Candidates should possess the D.P.M. and experience of child guidance work is desirable. Remuneration in accordance with the B.M.A. rates, plus travelling expenses. Applications, stating age, qualifications and experience, together with the names of two referees, should be received by the Director of Education, Education Offices, 15, John Street, Sunderland, not later than August 11, 1956. (6449)

COUNTY BOROUGH OF WOLVERHAMPTON

SENIOR ASSISTANT SCHOOL MEDICAL OFFICER

Applications invited for the above superannuable appointment at a salary of £1,555 by £50 (2) by £55 (3) to £1,820 from candidates with experience as School Medical Officer. Applications, giving age, qualifications, experience, present and previous appointments with dates, the names of two referees, and endorsed "Senior Assistant School Medical Officer" to be forwarded within 14 days of the appearance of this advertisement to the Director of Education, Education Offices, North Street, Wolverhampton.—A. G. Dawtry, Town Clerk. (6534)

COUNTY OF CUMBERLAND

Applications are invited from registered medical practitioners holding the Diploma in Public Health for the mixed whole-time appointment of

ASSISTANT COUNTY MEDICAL OFFICER and MEDICAL OFFICER OF HEALTH

to the Whitehaven Borough and the Ennerdale Rural District Councils (combined population 54,000). As an Assistant County Medical Officer he will be on the staff of the County Medical Officer for 5/11ths of his time. As Medical Officer of Health for the remaining 6/11ths of his time he will be subject to the Sanitary Officers' (Outside London) Regulations 1935 and 1951, and to the control and direction of the respective district councils. The salary will be fixed within the range £1,600 rising by increments according to scale to a maximum of £1,962 in the terms of the Medical Whitley Council scales. Travelling and subsistence allowances in accordance with the National Joint Council scale for essential user. Office accommodation and clerical assistance will be provided. Further particulars and forms of application obtainable from the County Medical Officer, 11, Portland Square, Carlisle, to whom applications should be submitted before August 31, 1956. (6068)

COVENTRY CORPORATION

SCHOOL MEDICAL OFFICER and ASSISTANT MEDICAL OFFICER OF HEALTH (joint post)

required for duties connected with medical inspection and clinic treatment of schoolchildren, maternity and child welfare work, and such other duties as the Medical Officer of Health and Principal School Medical Officer may include from time to time. Qualifications/experience in ascertainment of handicaped pupils an advantage. Salary £1,050 to £1,475. Commencing salary according to experience/qualifications. Applications and full particulars, to Medical Officer of Health, New Council Offices, Coventry. (6073)

MIDDLESEX COUNTY COUNCIL
County Health Department

ASSISTANT MEDICAL OFFICER
(Male or Female)

required initially in Area No. 1 (Edmonton & Enfield). Duties include supervision of health of school children, mothers and young children attending health clinics and routine medical inspections at schools. Experience in these branches of Public Health work an advantage. Salary: £975 by £50 to £1,375 per annum inclusive (under review). Established, pensionable, subject to medical assessment and prescribed conditions. Apply (no forms), stating age, qualifications experience and two referees, to Joint Area Medical Officer, Public Offices, Enfield, by August 24 (Quote T.293 B.M.J.). Canvassing disqualifies.—Kenneth Goodacre, Clerk of the County Council, Guildhall, Westminster, S.W.1. (6427)

NOTTINGHAMSHIRE COUNTY COUNCIL

APPOINTMENT OF SENIOR ADMINISTRATIVE MEDICAL OFFICER (male)

Applications are invited for the above appointment from duly qualified and registered medical practitioners who hold a Diploma in Public Health. Applicants should have had general administrative experience with a Local Health Authority and in connection with the School Health Service. Salary £1,570 by £50 to £1,620 by £55 to £2,055 per annum. Within this scale the County Council are prepared to take into consideration the existing salary of the successful candidate in assessing his commencing salary. Application forms and conditions of appointment are obtainable from me, and completed applications must be returned by August 25, 1956.—A. R. Davis, Clerk of the County Council, Shire Hall, Nottingham. (6335)

SURREY COUNTY COUNCIL

APPOINTMENT OF ASSISTANT MEDICAL OFFICERS

Applications are invited for the appointment of full-time assistant medical officers. Applicants must possess either the D.P.H. or D.C.H. The main duties will be in connection with the school health and maternity and child welfare services. Salary according to experience on the grade £1,050 by £50 to £1,200 by £55 to £1,475 per annum. The appointment is subject to satisfactory medical examination, to the provisions of the Local Government Superannuation Acts, 1937 to 1953, and to three months' notice on either side. Application forms from the County Medical Officer, County Hall, Kingston-upon-Thames, to be returned by August 18, 1956. (6307)

ADMINISTRATIVE

WELSH REGIONAL HOSPITAL BOARD

Applications are invited for the following full-time appointment on the Headquarters permanent staff:

MEDICAL OFFICER

Salary £1,415 (at age 33 or over) by £50 (4) by £65 (1) to £1,680 per annum. The commencing salary will be abated in the case of a successful applicant under 33 years of age. The duties of the office will be concerned in assisting in the administration of the Hospital and Specialist Services provided by the Board, as may be assigned to him from time to time by the Board's Senior Administrative Medical Officer. The appointment is subject to the provisions of the National Health Service (Superannuation) Regulations, and to the passing of a medical examination. Applications (including a statement of candidate's age, qualifications and experience, and the names of three referees) should be received by the undersigned not later than August 18, 1956.—A. E. Newell, Secretary of the Board, Temple of Peace and Health, Cardiff. (6506)

GOVERNMENTAL

TREASURY MEDICAL SERVICE

Applications are invited from Medical Practitioners, practising in the districts detailed below, for appointment, in a part-time and mainly advisory capacity, as

LOCAL TREASURY MEDICAL OFFICER

for each of the places or groups of places shown. The town shown in brackets after the place-names indicates the Head Post Office Area in which the place, or group of places, is situated. Successful applicants will be required to examine and report on the condition of certain Government Officers, teachers, candidates for appointment, etc., who may be referred to them from time to time; and to attend when summoned to an emergency case of accident or sudden illness occurring in a Government office in the neighbourhood. Fees for this work, and mileage allowance where necessary, will be paid on a scale agreed with the British Medical Association. Intending applicants should write, within 14 days, to Treasury Medical Adviser, Treasury Chambers, Whitehall, S.W.1, for a form on which application may be made. Applicants should be not more than 60 years of age. The places for which applications are invited are as follows:

England & Wales

Hartley Wintney (Basingstoke)
Bradford (Bradford)
Newport (Cardigan)
Bellingham, West Woodburn, Falstone, Kielder (Hexham) and
Otterburn (Newcastle-on-Tyne)
Hethersett (Norwich)
Totton (Southampton)
Brownhills (Walsall)

Scotland

Glasgow, W.5
Glasgow, S.W.3
Glasgow, E.3
Haddington (Haddington)
Kirkcowan (Newton Stewart)
Ballachulish (Oban)
Dollar (Stirling)

Northern Ireland

Lisnacree (Newry) (6491)

SERVICES

THE MEDICAL SERVICE OF THE ROYAL NAVY

VACANCIES FOR MEDICAL OFFICERS

Candidates are invited for Short Service Commissions of 3 years, on termination of which a gratuity of £450 (tax free) is payable. Minimum basic pay £584 per annum, plus emoluments. Ample opportunity is granted for transfer to Permanent Commissions on completion of one year's total service. Officers so transferred are paid instead a grant of £1,500 (taxable). All entrants are required to be British subjects whose parents are British subjects, to be medically fit, and to pass an interview. Full particulars from the Admiralty Medical Department, Queen Anne's Mansions, St. James's Park, London, S.W.1.

INDUSTRIAL APPOINTMENTS

(Vacant)

Attention is drawn to the B.M.A. scale of remuneration for Industrial Medical Officers, which is available on request from the Secretary.

NATIONAL COAL BOARD
West Midlands Division

Applications are invited from registered medical practitioners for the post of

ASSISTANT AREA MEDICAL OFFICER

The work will include treatment of accidents underground, the examination of new entrants, lectures in First Aid and general duties in connection with occupational hygiene. The post is suitable for applicants aged about 30 years who have had some postgraduate experience, preferably in industrial medicine. Salary, according to qualifications and experience, will be within the range, £1,100 to £1,600 per annum. A candidate appointed with a fair amount of postgraduate experience will receive a starting salary of not less than £1,200. Detailed applications, giving the names of two referees, should be sent to Staff Director, National Coal Board, Himley Hall, Dudley, Worcs, to arrive within fourteen days of the appearance of this notice. (6536)

FACTORY DOCTORS
FACTORIES ACTS, 1937 and 1948

The following appointments as Appointed Factory Doctor are vacant: Todmorden, in the county of Lancaster; Ventnor, in the county of Southampton. Applications, which should be received not later than August 25, 1956, should be sent to Chief Inspector of Factories, 19, St. James's Square, London, S.W.1. (6568)

REPUBLIC OF IRELAND

NATIONAL CHILDREN'S HOSPITAL
Harcourt Street, Dublin

TWO HOUSE PHYSICIANS

required for six months from October 1, 1956. Open to Post-registration candidates only. Salary £150 per annum; free quarters, messing and laundry. Applications, with copies of testimonials, to House Governor, by August 20, 1956. (6535)

OVERSEA (Vacant)

ENGLISH, IRISH, SCOTTISH OR WELSH Doctor required, Pusan Korea. General Medical qualifications. Salary £1,000 to £1,250 depending on experience, plus board and accommodation. One to two year contract. Apply Foreign Relief Secretary, Save the Children Fund, 12, Upper Belgrave Street, S.W.1. Tel.: Sloane 9171. (6432)

RHODESIA. ASSISTANT OTOLOGIST WITH Fellowship required, with view to Partnership. Initial salary £2,500.—Box 958, B.M.J.

SALE OF PRACTICE (GENERAL) IN RURAL Canada. Gross $12,000-$15,000 p.a. (without Surgery). For value of house (furnished) and car. Owner specializing. Will accept sterling (and give terms if necessary). Sale to be completed before end of summer. Surgical experience (practical) a valuable asset. Modern hospital facilities available. Renting will be considered if preferable. Give relevant details first letter.—Box 1165, B.M.J.

TASMANIA. ASSISTANT WANTED, VIEW early partnership with English doctor in country district 23 miles Hobart, capital City. All details on application.—Apply Box 1060, B.M.J.

CATHOLIC MISSION HOSPITALS. VACANCIES in East and West Africa and India.—Apply Secretary, Damien Society, 47, Fitzwilliam Square, Dublin. (7130)

NEWFOUNDLAND. REQUIRED: FOUR M.O.S for T.B. sanatoria, three M.O.s for hospital service (preferably with anaesthetic experience), and three Assist. M.O.s for cottage hospitals, incorporating G.P. duties. Salary ranges $6,000-$8,000 p.a.—Full details from M.P.A.B., B.M.A. House, Tavistock Square, W.C.1 (Agents).

A 350 BED HOSPITAL INVITES APPLICATIONS for Rotating Internships for a one year period. Honorarium $50.00 per month plus board, room and uniforms. Ideal for one year's training prior to establishing a practice in this province. Apply, stating qualifications, to (Mrs.) V. Burgoyne, R.N., Assistant Superintendent, Misericordia General Hospital, Winnipeg 1, Manitoba.

CARDIAC LABORATORY

Fellowship available for clinical research in cardiology begining September 1, 1956. Salary range $3,000 to $4,000 per annum depending upon qualifications. Applications, stating age, academic qualifications and experience, and naming two referees, should be mailed immediately to Dr. H. Garfield Kelly, Kingston General Hospital, Kingston, Ontario, Canada. (6262)

GOVERNMENT OF THE FEDERATION OF RHODESIA AND NYASALAND
Ministry of Health

VACANCIES: GOVERNMENT MEDICAL OFFICERS (MALE)

As a result of continued expansion in the Medical Services of the Federation further vacancies exist for Government Medical Officers. These are essentially general duty posts and applicants must have completed one year's experience since qualifying. Minimum commencing emoluments, including allowances in lieu of private practice, vary between £1,400 and £1,600 per annum according to experience. The maximum basic salary on this grade is £1,800, but opportunities exist for transfer to centres with private practice benefits or promotion to higher grades. Application forms and further details from the Public Service Attaché, Rhodesia House, 429, Strand, London, W.C.2. Closing date August 17. (6553)

TASMANIA

Applications are invited from medical practitioners registrable in Tasmania for the position of

SPECIALIST ANAESTHETIST

in the public hospitals of the North-West Group. Main hospitals are the Devon Public Hospital at Latrobe, Burnie Public Hospital, and the Spencer Public Hospital at Wynyard. Devon and Burnie Public Hospitals have a Surgeon Superintendent, Medical Superintendent, and two Resident Medical Officers. Applicants should possess a recognized higher qualification in the specialty. The successful applicant will be expected to provide his own car, for which an allowance will be payable, according to horsepower, when used on duty. All electric semi-detached house at Burnie available. Four weeks' annual recreation leave—Superannuation benefits. Salary from £A2,318 by annual increments of £A50 to £A2,568, but an appointment at the maximum figure may be made provided suitable qualifications are held. Assisted passages for appointee and family can be arranged, or, alternatively, forward fares only will be refunded over a period of 5 years' service with the North-West Hospital Group. Applications, in duplicate, to the Agent-General for Tasmania, 457, Strand, London, W.C.2, by August 25, 1956, from whom further details may be obtained. (6268)

WELLINGTON HOSPITAL BOARD
Wellington, New Zealand

SENIOR SURGICAL REGISTRAR

Applications are invited from Medical Practitioners who are either registered in New Zealand or who hold qualifications entitling them to registration in New Zealand, for the position of Senior Surgical Registrar at the Wellington Hospital for 1957. Duties to commence January 1, 1957. Applicants must either hold an appropriate higher qualification or at date of commencement of duties be qualified for five years, including at least two years as a House Surgeon or Registrar. Salary in accordance with the Hospital Employment Regulations, the minimum commencing salary being £806 5s. per annum. This rate is at present subject to the General Wage Increase of £81 7s. per annum. In addition a living out allowance at the rate of £179 8s. per annum is also payable. Applications, stating age, qualifications, whether married or single, and giving a complete concise statement of experience, should be addressed to the Secretary, Wellington Hospital Board, Private Bag, Wellington Hospital, Wellington, New Zealand, and will be received by him up to 9 a.m. on Thursday, August 23, 1956.—J. B. I. Cook, Secretary. (6546)

ANATOMY DEPARTMENT, DALHOUSIE UNIVERSITY, Halifax, Nova Scotia, Canada

Applications are invited for an

ASSISTANT PROFESSOR
in the Department of Anatomy

Experience in teaching and research in Embryology and Histology, or in Neuroanatomy, is essential and a working knowledge of Gross Anatomy desirable. Candidates with a medical degree will be preferred, although those with an honours degree in medical science or biology will receive special consideration. The minimum salary for a medical graduate will be $5,000. The salary will depend on qualifications and experience. Applications to be made to Professor R. L. de C. H. Saunders at the above address.

UNIVERSITY COLLEGE OF THE WEST INDIES

Applications are invited for

CHAIR OF PATHOLOGY

Duties include pathological work in University College Hospital, instruction to students working for medical degrees of University of London and research. Salary in range £2,400 to £2,750 per annum, entry point determined by qualifications and experience. Child and other allowances. F.S.S.U. Unfurnished accommodation at 5% basic salary. Passages up to 5 persons, on appointment, normal termination and triennial study leave. Detailed applications (12 copies), naming three referees, by September 17, 1956, to Secretary, Senate Committee on Colleges Overseas in Special Relation, University of London, Senate House, London, W.C.1, from whom further particulars may be obtained. (6571)

UNIVERSITY OF ALBERTA HOSPITAL
Edmonton, Alberta, Canada

ASSISTANT SUPERINTENDENT (Medical)

required. Starting salary $7,800 per annum. Annual increments of $500 to $9,800. Give full particulars, name referees, and enclose photograph first letter, to A. C. McGugan, M.D., Superintendent, University of Alberta Hospital, Edmonton, Alberta, Canada. (6451)

UNIVERSITY AND RESEARCH APPOINTMENTS, etc.

ST. GEORGE'S HOSPITAL MEDICAL SCHOOL, S.W.1

Applications are invited for the post of

PART-TIME LECTURER

in Social Medicine with Medical duties to St. George's Hospital, Hyde Park Corner. Salary £1,000 per annum: F.S.S.U. and family allowance benefits. Duties to begin on or about October 1 next. Applications, with names of three referees, should reach the Dean of the Medical School not later than September 21, 1956. (6450)

THE LONDON HOSPITAL MEDICAL COLLEGE

Applications are invited for the post of

ASSISTANT PATHOLOGIST

in the Department of Cancer Research, which is sponsored by the British Empire Cancer Campaign. Initial salary, according to qualifications and experience, on a scale £900 by £100 to £1,300 per annum. Applications to be forwarded within fourteen days to the Secretary, The London Hospital Medical College, Turner Street, London, E.1. (6424)

THE UNITED CARDIFF HOSPITALS

MEDICAL PROFESSORIAL UNIT—RESEARCH FELLOWSHIP

Applications are invited for appointment to a Research Fellowship in Medicine in the Professorial Unit of the Welsh National School of Medicine at the Cardiff Royal Infirmary. The appointment, at a salary of £1,100 per annum with superannuation, is normally tenable for a period of two years. The person appointed will be able to take part in the teaching and routine work of the Department. Further particulars about this appointment, and forms of applications, are available from the Secretary to the Board at the Cardiff Royal Infirmary, Cardiff. Applications should be returned by August 31. (6419)

THE UNIVERSITY OF LEEDS

Applications are invited for appointment as

ASSISTANT LECTURER OR LECTURER
in Clinical Psychology

at a salary within the range £550 by £25 to £650 for an Assistant Lecturer or £650 by £50 to £1,350 a year for a Lecturer, according to qualifications and experience. Applications (three copies), stating date of birth, qualifications and experience, together with the names of three referees, should reach the Registrar, The University, Leeds, 2 (from whom further particulars may be obtained), not later than September 1, 1956. (6434)

University and Research Appointments—contd.

THE UNIVERSITY OF MANCHESTER

Applications are invited for the full-time post of
LECTURER in Orthopaedic Surgery
Salary on a scale rising to £2,000 per annum according to qualifications and experience. Duties to commence as soon as possible. The successful applicant will be required to work in the Department of Orthopaedic Surgery in the Manchester Royal Infirmary, and the Board of Governors of the United Manchester Hospitals is prepared to negotiate an honorary contract with the person appointed. Applications should be sent not later than August 18, 1956, to the Registrar, the University, Manchester, 13, from whom further particulars and forms of application may be obtained. (6104)

THE UNIVERSITY OF MANCHESTER

Applications for the post of
LECTURER IN SOCIAL AND PREVENTIVE MEDICINE
are invited from registered medical practitioners. The post is a joint appointment between the University and the Lancashire County Council, whereby the person appointed, in addition to carrying out lecturing duties at the University, will carry out duties normally associated with an Assistant Divisional Medical Officer in the neighbouring area in the County. Salary on a scale rising to £2,000 per annum with membership of F.S.S.U. and Children's Allowance Scheme. Initial salary fixed according to qualifications and experience. Applications should be sent not later than September 14, 1956, to the Registrar, the University, Manchester, 13, from whom further particulars and forms of application may be obtained. (5766)

UNIVERSITY OF GLASGOW

LECTURESHIP
in Pathology at the Western Infirmary
Applications are invited for a Lectureship in Pathology. Salary according to placement on University scale for clinical teachers. The final maximum is £1,750 per annum. F.S.S.U. and family allowance benefits. Applications (12 copies) should be lodged, not later than August 18, 1956, with the undersigned, from whom further particulars may be obtained.—Robert T. Hutcheson, Secretary of the University Court. (6126)

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL—Obstetric Unit

Applications are invited for the post of
FIRST ASSISTANT
in the Obstetric Unit. Salary according to qualifications but not less than £1,500 per annum with Superannuation and Family Allowance. Applicants must possess a University Degree and the M.R.C.O.G. The holder of the post will be required to sign an Honorary Contract to undertake duties in University College Hospital. Applications, with names of two referees, should be sent to the Secretary of University College Hospital Medical School, University Street, London, W.C.1, not later than August 31, 1956. (6423)

NOTICES

APPLICANTS ARE ADVISED NOT TO SEND original testimonials when replying to advertisements. Copies will answer the purpose quite as well, and in the event of their being lost or mislaid no inconvenience will ensue.

PREGNANCY DIAGNOSIS BY THE XENOPUS METHOD, 24-hour service. Send specimen of urine and fee. Haematology, Biochemistry, Flame Photometry.—Welbeck Biological Laboratories, 26, Park Crescent, Portland Place, W.1. MUS. 5386-7.

EDUCATIONAL AND LECTURES

SURGICAL COACHING BY M.S., F.R.C.S.—Box 975, B.M.J.

POSTAL COACHING FOR ALL MEDICAL EXAMINATIONS. Examination successes 1940-1955: M.R.C.P.Lond., 234; F.R.C.S.Eng., Primary, 185; F.R.C.S.Eng., Final, 262; M. and D.Obst. R.C.O.G., 312; D.A., 262; D.C.H., 183; University and Conjoint Finals, 751. Up-to-date courses for the M.D.Lond., M.R.C.P.Edin., F.R.C.S.Edin., D.P.H., F.F.A., D.P.M. Assistance with M.D. Thesis. Prospectus, list of tutors, etc., on application to G. E. Oates, M.D., M.R.C.P.(Lond.), University Examination Postal Institution, 17, Red Lion Square, London, W.C.1. 'Phone: HOLborn 6313.

M.R.C.P. LONDON. Correspondence coaching course recently prepared by experienced tutors, includes help with the clinical examination.—Write, J. Arnold, 189, Regent Street, W.1.

MEDICAL CORRESPONDENCE COLLEGE, 19, Welbeck Street, London, W.1, provides COACHING for all Medical Examinations. D.A., F.F.A., D.P.M., D.O., D.L.O., D.C.H., D.M.R.D., D.P.H., M.R.C.P., F.R.C.S., M.D. thesis and all qualifying exams by a staff of highly qualified Tutors, Honoursmen, and Gold Medallists. Complete Guide to Medical Examinations sent free on application. Applicants should state in which qualification they are interested.

SOCIETY OF APOTHECARIES OF LONDON.—Surgery: August 13, October 8, November 12. Medicine and Pathology: August 20, October 15, November 19. Midwifery: August 21, October 16, November 20. Master of Midwifery: May and November. Diploma in Industrial Health: July and December. For regulations, apply Registrar, Apothecaries Hall, Black Friars' Lane, London, E.C.4.

THE MILROY LECTURES ON STATE MEDICINE AND PUBLIC HEALTH

The Council of the Royal College of Physicians of London are prepared to receive applications for the office of
MILROY LECTURER for 1958
Applications must be addressed to the Registrar, Royal College of Physicians, Pall Mall East, S.W.1, to reach the College on or before Wednesday, September 5, 1956, and to include a short synopsis of the subject selected by the candidate. Two Lectures are to be given on a Tuesday and Thursday in February or March, 1958. A copy of Dr. Milroy's "Suggestions" on the subject of his bequest, and information as to the emolument, may be obtained from the Registrar. (6566)

Readers frequently desire to refer to advertisements concerning appliances, preparations, etc., which have appeared in earlier issues of the *Journal*.

The Advertisement Director can supply particulars at any time.

In dealing with written inquiries, especially from overseas, correspondents are, wherever possible, put in direct contact with the advertisers in whose products they are interested.

Write: Advertisement Director,
British Medical Journal,
B.M.A. House,
Tavistock Square,
London, W.C.1.

UNIVERSITY OF GLASGOW
ROYAL FACULTY OF PHYSICIANS AND SURGEONS

Postgraduate Medical Education Committee

CONFERENCE ON MEDICAL AND SURGICAL CARDIOLOGY

A specialist conference on cardiology will be held in the Royal Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, C.2, and in the teaching hospitals of Glasgow from October 1 to 5, 1956.

MONDAY, OCTOBER 1
9.45 a.m. .. Inauguration
10.00 „ .. W. E. Adams, Chicago .. .. "Cyanotic Heart Disease"
11.30 „ .. Discussion .. .. Openers: W. A. Mackey, D. M. Douglas, Andrew Logan, G. J. Aitken
2.00 p.m. .. Presentation of Cases

TUESDAY, OCTOBER 2
9.30 a.m. .. Operating Sessions
2.00 p.m. .. Clinico-Pathological Conference .. D. F. Cappell

WEDNESDAY, OCTOBER 3
9.30 a.m. .. Andrew Logan .. .. .. "Mitral Disease"
11.00 „ .. Discussion .. .. Openers: J. H. Wright, W. A. Mackey, W. E. Adams, Rae Gilchrist
2.00 p.m. .. Out-patient Sessions

THURSDAY, OCTOBER 4
9.30 a.m. .. Symposium on "Cardiac Ischaemia" Chair: J. H. Wright
Openers: A. A. F. Peel, G. S. Boyd, A. J. V. Cameron, George Smith, W. F. M. Fulton, M. F. Oliver
2.00 p.m. .. Film Session: J. K. R. McMillan .. "Cardiac Valve Action"
Kenneth Fraser .. "Constrictive Pericardectomy"
"Pulmonary Valvotomy" (by H. William Scott)

FRIDAY, OCTOBER 5
9.30 a.m. .. W. E. Adams .. .. "Coarctation of the Aorta"
11.00 „ .. Discussion .. .. Openers: W. A. Mackey, R. S. Barclay, Andrew Logan, W. H. Bain
2.00 p.m. .. Closing Session

There is no fee for the course. Lunch will be available at a nominal charge in the Royal Faculty each day, except Tuesday, at 12.0 p.m. An informal dinner will be held on Thursday at 7 p.m. Further particulars may be obtained from the Registrar, Royal Faculty of Physicians and Surgeons, 242, St. Vincent Street, Glasgow, C.2.

SITUATIONS VACANT

Hospital Biochemist

Applications are invited for the post of Hospital Biochemist (Senior Grade) at Llandough Hospital, Penarth, Glamorgan. This is one of the two main teaching hospitals of the United Cardiff Hospitals. Salary (£910 to £1,230) according to Whitley Council P.T.A. Circular No. 34. Applications, with full details, and names of two referees, to be addressed to the Secretary, United Cardiff Hospitals, Cardiff Royal Infirmary, Newport Road, Cardiff. (6463)

MEDICAL ILLUSTRATION, PHOTOGRAPHY, ETC.

The University of Manchester

Applications are invited for the post of
Medical Artist
who will be responsible for the preparation of drawings, diagrams and similar works for members of the staff of the Medical School, both in the University and in the United Manchester Hospitals. Salary not less than £600 per annum. Duties to begin in October, 1956, or as early as possible thereafter. Applications should be addressed to the Registrar, the University, Manchester, 13, and should reach him not later than September 1, 1956. Applicants should give the names of not more than three persons to whom reference may be made and may also submit copies of not more than three testimonials which will not be returned. (6522)

PHARMACISTS, DIETITIANS DISPENSERS, NURSES, ETC.

AVAILABLE

Lady requires position as Dispenser-Receptionist, Hall certificate. Surgery or institution.—Box 1161, B.M.J.

RECEPTIONISTS, SECRETARIES, TYPISTS, HOUSEKEEPERS, ETC.

AVAILABLE

Married couple require post with unfurnished accommodation. Wife 13 years dispensing/accounts, etc., driving licence. Husband light duties owing to operation, could pursue own occupation. Daughter 9 years. Suggestions appreciated.—Box 1164, B.M.J.

Applicants requiring testimonials, theses, copied or duplicated, should communicate with Manton Secretarial Service, Ltd., 98, Victoria Street, S.W.1 (Victoria 0141), who are specialists.

Thoroughly-trained Temporary or Permanent Medical Secretarial Staff may be engaged through Brook Street Bureau of Mayfair, Ltd., 59, Brook Street, W.1. MAY 8866.

Typewriting and Duplicating. First-class work. Electric typewriters. Moderate.—Sybil Rang, 21, Heath Street, N.W.3. HAM 5829/0504.

CONSULTING ROOMS, ETC.

AVAILABLE

For Consulting Rooms and Houses in Harley Street, etc., apply C. B. Bedford & Co., Ltd., 10, Wigmore Street, W.1. Langham 3927.

To let. Half large garage. Lighting, stand pipe, W.C., central heating, separate entry. Devonshire Mews South. £2 weekly.—Box 1171, B.M.J.

ACCOMMODATION

(Convalescence, Holidays, etc.)

AVAILABLE

FURNISHED FLATS, FOUR ROOMED AND two roomed, available, Peckham, S.E.15.—Reply to Box 1155, B.M.J.

CRUISES AND TOURS

LAST-MINUTE CONTINENTAL HOLIDAYS. Not mass produced but individually arranged as and where you wish.

Business and Holiday Travel, Ltd.,
Grand Buildings,
Trafalgar Square, London, W.C.2
Telephone : WHItehall 4114-5

HOTELS

CENTRAL WALES. — ABERNANT LAKE HOTEL, Llanwrtyd Wells. For rest, recreation, personal attention and excellent cuisine. Lovely country setting. Privately owned golf course, fishing, tennis, shooting, riding, pony trekking. Interesting brochure on application.

MISCELLANEOUS

Wanted, X-ray Screening Apparatus in good working order. Older type considered.—Box 1166, B.M.J.

Hide maternity bag, steriliser, bottles, unused. Cost 15, offered 12 guineas. Liverpool.—Box 1154, B.M.J.

Bronze Nameplates, send size and lettering for free proof.—Abbey Craftsmen, 78, Osnaburgh Street, N.W.1. EUSton 5722.

Bronze Name Plates with cream enamel letter-ing. Send size and lettering for estimate.—Osborne, 117, Gower Street, London, W.C.1.

Live Leeches always in stock.—Apply R. Brooks and Co., Lucullus House, 4, Barbican, London, E.C.1.

Microscopes. Highest prices paid for good modern types. Send or bring your equipment for valuation.—Wallace Heaton, Ltd., 127, New Bond Street, W.1.

Nameplates, Bronze, Brass, Plastic. Sketch and estimates free.—Austin Luce & Co., 19, College Road, Harrow, Middlesex. HARrow 3839.

Name Plates in Bronze, Brass and Plastic, etc. Estimates and Sketches free.—A. T. Brown & Co., Ltd., 347/349, Katherine Road, London, E.7. Tel.: GRAngewood 1024.

MEDICAL PRACTICES ADVISORY BUREAU

APPOINTMENTS INFORMATION SERVICE

Doctors seeking information about openings in the various fields of medical practice or introductions as locums, assistants or partners, are invited to address enquiries to the Medical Director, Medical Practices Advisory Bureau at

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